MAPPING & SIZE ESTIMATION

OF MOST-AT-RISK-POPULATION IN NEPAL-2011

Vol.2 INJECTING DRUG USERS

HIV/AIDS and STI Control Board (HSCB)
National Centre for AIDS and STD Control (NCASC)

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Field work done upto January 2011

Study Conducted by:
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Foreword

Effective response to HIV AIDS requires evidence to inform its course of action and priorities for maximizing the impact. In Nepal the reliable estimates of sizes of Most at Risk Population groups have remained a big data gap in recent years and the needs was felt at all levels to have a comprehensive exercise to map MARP populations groups and estimate their sizes. These data sets of mapping and size estimates of MARPs will help country in evidence based planning, prioritizing the geographical areas for resource allocation, feed into second generation surveillance including estimation of the infection load and to monitor and evaluate the response by tracking the coverage.

So, in order to fulfill these data gaps, HSCB in partnership with NCASC and with technical and financial support from UNAIDS, World Bank, UNDP, UNODC, FHI Nepal/USAID, conducted a study for mapping and estimating size of most at risk population namely, Female Sex Worker, Male Sex Worker, Transgender and Their Clients (MTC) and Injecting Drug User (IDUs) in 41 districts systematically selected to represent entire country. As a result, these estimates number will play key role to guide policy makers and planners for ensuring effective response to HIV/AIDS targeting these groups in various parts of the country.

The results have come out at an opportune time as the country prepares its next National Strategic Plan 2011-16 and when a review of the targeted interventions is underway with Government taking up the leadership role in implementing the prevention programs amongst MARPs with support of GFATM and pooled funding.

We would like to extend our gratitude to NCASC, UNAIDS, World Bank, UNDP, UNODC, FHI Nepal/USAID for supporting such a meaningful and prestigious study. We hope this report will be useful for programme planning, prioritization, implementation and monitoring and evaluation and will go a long way in strengthening the culture of learning from evidence. It will also assist in identifying risk, vulnerability of HIV at district level as well as the available services which will help decentralized planning and management.

Finally, we would also like to thank all individuals for their contribution and active role played in completion of this study.

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Preface

In countries like Nepal, where there is concentrated epidemic of HIV, the national response to HIV and AIDS should be prioritize according to burden of risk and vulnerability among most at risk populations in country. The reliable size estimates of MARPs at national, regional and district level provides a basis for both policy and programming. It is also important to know where these population sub groups are located/ concentrated to design and implement the effective intervention. Size of MARPS helps us to alert policy-makers to the existence and the magnitude of a different subpopulation that may be at risk for HIV.

Previously, country had estimated size of MARPs using different secondary methods. For the first time NCASC & HSCB conducted a mapping and size estimation of most at risk population (IDUs, FSW and MTC) in a collaborative manner with technical and financial support from UNAIDS, WB, UNDP, UNODC, USAID/FHI.

Result from this extensive exercise are expected to be useful in programme planning, policy formulation and strategy development which will contribute to acquire outcome with shaping the intervention to be more specific.

At last, I would like to thanks all the organizations and individuals who have substantially contributed on this important and meaningful study. I hope facts on this report will be extensively used in programme planning and implementation.

.....

Dr. Ramesh Kumar Kharel
Director
NCASC

DIRECTOR

ACKNOWLEDGEMENTS

We would like to extend our gratitude to World Bank, UNAIDS, UNDP, UNODC (support managed by TSF South Asia), FHI Nepal/USAID for providing us with the opportunity to conduct such a meaningful and prestigious study.

We would also like to extend our sincere thanks to all the steering committee members for guiding all the aspects of the study right from the stage of study conceptualization. Their visits to the field and frequent interaction with the research team proved to be extremely helpful while carrying out the study.

Mr. Alankar Malviya, Strategic Information and M&E Advisor for Nepal and Bhutan, deserves special credit for the guidance and support provided during the entire course of the study. We would like to express our appreciation for Mr. Sanjay Rijal, M&E Officer, and Mr. Komal Badal, M&E Assistant, HSCB for their technical inputs, support and guidance throughout the course of the study.

We also gratefully acknowledge the substantial contribution of Dr. S.K. Singh, Tobi Saidel and Virginia Loo for their technical inputs throughout this study. Moreover, we are also grateful to Ms. Tanya Sarin for her support on report writing and editing.

We are also indebted to all government, non-government organizations and Recovering Nepal for their support during the various stages of this study. Special appreciation goes to our respondents, who despite their busy lives spared their valuable time for the interviews and shared their personal experiences.

HIV AIDS and STI Control Board
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Teku, Kathmandu
2011

ABBREVIATIONS & ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ART	Anti-Retroviral Therapy
BCC	Behavior Change Communication
BDS	Blue Diamond Society
CBO	Community-based Organizations
CREPHA	Centre for Research on Environment, Health and Population Activities
DACC	District AIDS Coordination Committee
DFID	Department for International Development
DIC	Drop-in Centre
DOHS	Department of Health Services
EB	Establishment- based
FHI	Family Health International
FSW	Female Sex Worker
HB	Home-based
HIV	Human Immunodeficiency Virus
HSCB	HIV/AIDS and STI Control Board
IBBS	Integrated Bio-behavioral Survey
IDU	Injecting Drug User
I/NGO	International Non-governmental Organization
KI	Key Informant
MARP	Most-At-Risk Population
MSM	Men who have Sex with Men
MSW	Male Sex Worker
MTC	Male sexworkers, Transgender and their clients
NCASC	National Centre for AIDS and STD Control
NLFS	Nepal Labour Force Survey
PLHIV	People Living with HIV
PRA	Participatory Rapid Assessment
SI-TWG	Strategic Information Technical Working Group
STI	Sexually Transmitted Infections
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNDP	United Nations Development Programme
VCT	Voluntary Counseling and Testing
VDC	Village Development Committee

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EXECUTIVE SUMMARY

Nepal conducted a mapping and size estimation exercise of Most at Risk Population (MARP) groups in consideration of the epidemic's nature, limited information available on the MARP groups of Female Sex Workers (FSWs), Men having Sex with Men (MSMs), and Injecting Drug User (IDUs) population, and the need for a more robust and evidence informed response to HIV in order to maximize results. This exercise was conducted under the leadership of the HIV/AIDS and STI Control Board (HSCB) and National Centre for AIDS and STD Control (NCASC); through financial and technical support of UNAIDS, World Bank, UNDP, UNODC and FHI Nepal/USAID; and with close oversight and monitoring by the Steering Committee on Mapping and Size Estimates of MARP Groups.

This report presents the data and key findings emerging through the mapping and size estimation exercise of the Injecting Drug Users (IDU).

The specific aims of the mapping and size estimation exercise were firstly, developing comprehensive maps of IDU sites; secondly, estimating the size of IDUs at district and national levels; and thirdly, studying IDU behavioural and background characteristics. Mapping and size estimation was conducted across 31 systematically selected districts in the following six epidemic regions of the country: Highway Districts, Kathmandu Valley, West and Mid-West Hills, Far-Western Hills, Eastern Hills and Remaining Hills regions.

Following a brief outline of HIV's epidemiology in the paragraph below, the methodology and key findings from the mapping and size estimation exercise are summarized.

Epidemiology

Nepal remains a concentrated epidemic country with an estimated 64,000 people living with HIV (PLHIV) (NCASC, 2009). The epidemic is concentrated amongst the FSWs, MTCs and IDUs. As acknowledged above, a need was felt for accruing greater knowledge on the size of MARPs and their behaviour to guide the AIDS response.

Methodology

Although the methodology used for mapping and estimating the size of IDUs took due cognizance of the methods that were previously utilized for estimating sizes of IDUs, it also focused on overcoming the limitations associated with each.

Under the current exercise, mapping data of 31 systematically selected districts across six epidemic regions was extrapolated for estimating the size of IDUs according to the similarity of risk and vulnerability present in the districts. Various techniques and processes were applied for collecting data on hotpots where IDUs are concentrated in 31 districts. These included firstly, the district level stakeholder meetings. These meetings aimed at facilitating community participation in the data collection process at the field level and supporting the monitoring and supervision of the entire study at the national level through the Steering Committee. The meetings enabled all stakeholders to list locations and hotspots and estimate the size of MARPs. Secondly, a Participatory Rapid Assessment (PRA) technique was employed. Population sizes were estimated and prevalent hotspots determined on information accrued by primary, secondary, and tertiary informants through focused group discussions. Finally, three-day observations were recorded by teams' comprising social scientists and community members at each hotspot in the mapped districts. Approximately 10% of the IDUs were interviewed as a part of the behavioural survey for obtaining behavioural information.

The Steering Committee used inbuilt quality checks for ensuring data quality. The correction factors used and scheme of extrapolation are discussed in subsequent chapters of this report.

IDU hotspots

Information on IDU hotspots and size estimates is pertinent for national and district level programmers to consider whilst planning programmes and focusing interventions to target specific geographical areas. Key findings from the IDU mapping and size estimation exercise are presented under this sub-section.

Within the 31 districts selected for mapping in the proposed 6 epidemic regions, a total of 728 hotspots were identified in 357 different locations. The mapping exercise found the maximum number of IDU hotspots in the Highway Districts region followed by the Kathmandu Valley region.

Within the Highway Districts region, 554 hotspots are estimated and distributed non-uniformly across various districts. The number of hotspots in a district in this region varies from 7 to 77. Rupandehi and Kaski districts have the maximum number of IDU hotspots at 77 each, followed by Chitwan district with 70 hotspots. District Dhanusha has the minimum number of hotspots with just 7 hotspots. Ten districts including Saptari, Dhanusha, Rautahat, Makwanpur, Tanahu, Syangja, Kapilbastu, Banke, Kailali, and Kanchanpur have less than 20 IDU hotspots. Another four districts of Jhapa, Morang, Parsa and Nawalparasi have 20-40 IDU hotspots. Two districts of Sunsari and Bara have 40-60 hotspots and three districts of Chitwan, Rupandehi and Kaski have more than 60 hotspots.

There are 145 IDU hotspots in the Kathmandu Valley region. Among those, 70 hotspots are in the Kathmandu district, 33 in Lalitpur district and 42 IDU hotspots are in the Bhaktapur district.

IDU size estimates

The mapping and size estimation exercise in 728 hotspots estimates the number of IDUs in Nepal as between 30,155 and 33,742—with a 5.8% coefficient of range—after all necessary corrections and adjustments are incorporated.

Of the six epidemic regions in Nepal, it was estimated that the Highway Districts region has the maximum number of IDUs with 24,448 to 27,410 IDUs, followed in descending order by Kathmandu Valley with 4,341 to 4,758 IDUs, Remaining Hills with 751 to 860, Eastern Hills with 397 to 471, West and Mid-West Hills with 165 to 184 IDUs, and Far-Western Hills with the lowest estimates of IDUs ranging between 53 and 59.

In the Highway District region, the maximum IDUs are estimated to be present in Kaski district at between 3,187 and 3,477, followed by Morang district where their number ranges from 1,973 to 2,218, and Chitwan where the number of IDUs is estimated to be between 2,001 and 2,208. In this region, Syangja is reported to have the minimum estimated number of IDUs, ranging from 168 to 200. Among the districts of this region,

seven districts, namely, Sunsari, Siraha, Mahottari, Sarlahi, Parsa, Nawalparasi, and Rupandehi are estimated to have 1,000 to 2,000 IDUs. Morang, Chitwan, and Kaski and Kathmandu districts have the highest number of IDUs at more than 2,000.

In the Kathmandu Valley region, the total number of IDUs is estimated to be 4,341 to 4,758. Out of these, 2,648 to 2,883 IDUs are estimated to be present in the Kathmandu district, 845 to 958 in Bhaktapur district whilst 848 to 917 IDUs are estimated to be present in the Lalitpur district.

The three districts having the maximum number of IDUs across the six epidemic regions in descending order are Kaski with 3,187-3,477 IDUs, Kathmandu with 2,648 to 2,883, and Chitwan with 2,001-2,208 IDUs. The Surkhet district of West and Mid-West Hill region has the minimum number of IDUs with just 36 IDUs.

Eleven districts of the Highway Districts and Kathmandu Valley regions have a presence of more than 1,000 IDUs in each district, whereas 10 districts have between 100 and 500 IDUs. In contrast, 43 districts are estimated to have lesser than 100 IDUs. The West and Mid-West Hills region has an IDU concentration of below 100.

IDU profile and behavioural characteristics

This section presents the demographic profile of the interviewed IDUs in terms of the demographic characteristics including age, educational qualification, marital status, and behavioural characteristics, such as sexual habits and drug injecting practices, as obtained from the mapping study.

At the time of the survey, the maximum proportion or 61.6% of IDUs in Nepal were reportedly aged between 20 and 29 years, whereas 22.7% of the IDUs were over 30 years old. The level of educational attainment is found to be relatively higher in the IDU group when compared to other MARP groups, with 41.7% of the IDUs reporting to have completed 10 or more years of schooling, 37.4% IDUs having 6-10 years of education and only 7.8% of the IDUs reportedly having no formal education at the time of the survey.

With reference to marital and migrant status, 59.6% of the IDUs are reportedly unmarried and 25.4% IDUs are reportedly migrants. Forty-two percent of the IDUs are currently married and living with their spouses, whereas 48% of the IDUs are unmarried and not cohabiting with any sexual partner(s). Seven percent of the IDUs reported cohabitation with another sexual partner, making them vulnerable to risks owing to injecting as well as multi-partner sexual behaviours. Out of the married IDUs, over 31.5% have at least one child below the age of 16 years. These distributions increase the possibility of a significant number of IDUs in Nepal who remain hidden because they may still be leading family lives. Therefore, reaching the hidden IDUs for HIV prevention and treatment—including counselling for positive prevention—through programmatic interventions is challenging. It warrants the need for greater sensitization and creation of a conducive, enabling environment, in order to encourage this population to access programmes and services.

It is pertinent to examine the age of IDUs at their initiation into injecting drugs, owing to its implications on design and implementation of programs and interventions for IDUs. A total of 38% of the IDUs in the country started injecting drugs before reaching the age of 20 years, whereas 45% started injecting when they were in the age group of 20 to 24 years. A comparison of current age and the age at first injecting drug use indicates that development of this behaviour is recent amongst a considerable proportion of IDUs, and is increasingly being demonstrated by younger sections of the general population. Educational attainment shows a marginal negative correlation with age of first injecting drug use, with a larger proportion of those respondents who have 10 or more years of education first starting to inject drugs when under 20 years of age or when they were aged between 20 and 24 years as compared to those who have no formal education. Further, never married IDUs and those living in the Kathmandu Valley region are more likely to initiate injecting drug use at early ages compared to their counterparts.

The mapping study analyzed the proportion of IDUs who reported the consumption of alcohol. Data indicates that at 89%, a large proportion of the IDUs in Nepal reported alcohol consumption. The prevalence of alcohol consumption is significantly higher among IDUs aged between 20 and 29 years, IDUs with at least one year of education, and those living in the Highway Districts region. Daily consumption of alcohol is reported by 43% of the IDUs; IDUs above the age of 30 years and

those with no formal education account for a higher proportion of the IDU population who reportedly consume alcohol on a daily basis.

Data indicates that one in almost every 7 IDUs in Nepal shares needles with friends or other IDUs. A clear negative correlation between educational attainment and needle sharing is observed, with almost one in every fifth illiterate IDU sharing needles as compared to less than one in ten IDUs having more than 10 years of education. Prevalence of needle sharing is seen to be much higher among IDUs of Highway Districts as compared to those living in the Kathmandu Valley.

The mapping study highlights that IDUs who are relatively older, currently married, and do not have any formal schooling are more likely to have sex in the 30 days prior to the survey. However, those IDUs who are under 20 years old, unmarried, migrants, or living in Highway Districts are relatively more likely to report multiple partner sexual relations in the last 30 days prior to the survey, as compared to their counterparts.

In terms of safe sexual practices among IDUs, only 44% of the married IDUs reported using condoms while having sex with their spouses during the last 30 days prior to the survey, compared to 67% of the unmarried IDUs who reported using condoms while having sex with their partner(s) during the same period. Further, 21.3% of the IDUs reportedly had sex with a commercial partner during the last 30 days prior to the survey, out of which 83.3% reported condom use during sex. The prevalence of condom usage while having sex with commercial partners during the last 30 days prior to the survey was considerably higher among IDUs aged below 30 years and among those who were never married. Twenty-nine percent of the IDUs reportedly had sex with a non-commercial partner during the last 30 days prior to the survey, out of which 62.5% reportedly used condoms in their last sexual encounter with non-commercial partners.

A total of 75% of the IDUs in Nepal have ever been tested for HIV. Variance in this proportion with changing background characteristics is marginal, except in the case of IDUs who are under 20 years of age wherein 54.5% of IDUs have been tested for HIV at least once in their lifetimes, and in the case of unmarried IDUs wherein 68% have been tested for HIV at least once in their lifetime. Out of the IDUs who have ever tested for HIV, 76% of the IDUs were tested within the last 12 months prior to the survey. In terms of the preferred site of testing, the majority, at 60% of IDU respondents reported visiting VCT Centres for testing.

Current programme interventions for IDUs

The principle strategy of National AIDS Programme of Nepal includes focuses on HIV prevention, treatment, care and support services for IDUs towards the realization of the Millennium Development Goal 6. Although progress is notable through current and previous programmes, the achievements must nevertheless consider the mapping and size estimation data—coupled with IDU profiles and background characteristics—for filling gaps, expanding coverage, and increasing service access. The subsequent paragraphs provide an analysis of the current coverage of sites for needle exchange, condom outlets and Voluntary Counselling and Testing (VCT) and/or Sexually Transmitted Infections (STI) service centres for IDU hotspots.

Mapping of sites for needle exchange, condom outlets and VCT and/or STI service centres within a one kilometre range of mapped hotspots indicated 38.6%, 37.6% and 33.9% of the total IDU hotspots in Nepal have sites for needle exchange, condom outlets and VCT/STI services respectively, within one kilometre of the hotspots.

In terms of district coverage, the districts Dhanusha, Syangja and Surkhet did not have any hotspot within a one kilometre range of any sites for needle exchange, condom outlets or VCT/STI service. In 6 districts, more than 60% of the IDU hotspots had sites for needle exchange within one kilometre. Eight districts reported to have more than 60% of the IDU hotspots with condom outlets within a kilometre, whereas 4 districts had more than 60% hotspots with VCT/STI service within a one-kilometre range.

In terms of availability of services across regions, within the Highway Districts region, 33.8%, 38%, and 32% of the IDU hotspots have sites for needle exchange, condom outlets, and VCT/STI services respectively within a one kilometre range. In the Kathmandu Valley Region, 55.9% of the hotspots have sites for needle exchange, 30.3% hotspots have condom outlets, and 38.6% of the IDU hotspots have VCT/STI services within a one kilometre range. The Eastern Hill region, there are condom outlets

within a one kilometre range of all hotspots; however, none of the hotspots have sites for needle exchange, or STI/VCT centres within a one kilometre distance. The Remaining Hill region has 72.2% hotspots each with availability of needle exchange sites and condom outlets, and had 27.8% hotspots have access to VCT/STI services within a kilometre's distance. In the West and Mid-West Hill as well as the Far-West Hill regions, none of the services was available within a kilometre of the hotspots in the districts where the mapping exercise was conducted.

Programmatic recommendations

This study has identified a number of districts where despite substantial presence of IDUs, no targeted interventions have been implemented. This data must be used for prioritizing resource allocation and planning the extension of prevention services in these districts in order to achieve universal access targets. In the upcoming National Strategic Plan, these findings should form an integral part of the geographic prioritization scheme, and the target settings, coverage and achievement should be decentralized and percolated to district level for effective monitoring.

In districts where the size of the IDU group may not be large enough to initiate targeted interventions, the epidemic may spread suddenly. In order to prevent a sudden surge in transmission, national programs must undertake innovative strategies to ensure coverage of this population group when providing access to services and regularly monitoring the trend so that the dynamics of transmission pattern in these districts can be tracked and corrective actions can be taken in a timely manner.

Furthermore, the findings of mapping study can be extremely useful for increasing the effectiveness and efficiency of targeted interventions by using the detailed data gathered for the IDU group, including on their size, spread, behavioural patterns, etc.

Since the research indicates that a considerable proportion of IDUs are initiated into drug use at early ages, there is a need to ensure the expansion of services to this young population before it is exposed to high-risk behaviour. Therefore, programme monitoring should separately focus on the new IDUs covered in this research and these must be followed up as a separate focus area, which will enable the programme to 'catch them young'. This also calls for the need to ensure age disaggregated monitoring of prevention care treatment programmes.

Since the analysis of risk and vulnerability indicates the multi-sectorality of HIV, the response also needs to be multi-sectoral in nature, addressing all aspects of risk and vulnerability including a coordinated response between various sectors and line ministries in order to create an enabling environment wherein these population sub-groups can emerge and access services.

CHAPTER

1

INTRODUCTION

Nepal is a low prevalence state with an estimated 64,000 seropositive persons (National Centre for AIDS and STD Control (NCASC), 2009). Nepal's HIV epidemic remains concentrated amongst the Female Sex Workers (FSWs), Male Sex Worker, Transgenders and their Clients (MTCs) and Injecting Drug Users (IDUs) sub-population groups who are considered most vulnerable to HIV. Despite the low prevalent character of the epidemic, amidst concerns of a proliferation of infection amongst sub-population groups, coupled with the Government's endeavour to formulate a robust response to HIV to achieve the Millennium Development Goals, Nepal has patroned the generation and use of sound data and a strong evidence base for policy and programme formulation. In keeping with this objective, the Government of Nepal—through HIV/AIDS and STI Control Board (HSCB) and NCASC—and with the support of key partners, has undertaken a mapping and size estimation exercise for Most-at-Risk Population groups (MARPs).

Knowledge on the size of MARPs and their behaviour is fundamental not only for HIV policy and programme formulation but also for monitoring and evaluating interventions and undertaking necessary mid-course corrections for ensuring effective and efficient delivery of the national AIDS programme. This report presents data and analysis of key information emerging through the mapping and size estimation exercises of IDUs, across 31 systematically selected districts in the following six HIV epidemic regions (used for mapping) of the country: Highway District, Kathmandu Valley, West and Mid west Hill, Far-western Hill, Eastern Hill and Remaining Hill regions.

This introductory chapter presents the specific objectives of this study, country profile, definitions of key terminologies, and vulnerability factors for HIV and STI with respect to IDUs. Chapter two details the methodology for size estimation through extrapolation based on risk and vulnerability. Chapter

three presents key findings and analysis in text, tabular, and pictorial formats, including the number of locations, number of hotspots and size of IDUs across the epidemic regions. Chapter four provides a detailed analysis of IDU behaviour and HIV testing behaviour amongst various indicators according to background characteristics. Finally, chapter five summarizes the conclusions and programmatic recommendations on the basis of the mapping and size estimation exercise along with their behaviours.

1.0 Objective of the study

Mapping and size estimation of IDUs was conducted in Nepal since although IDUs are undoubtedly one of the MARPs with respect to the HIV epidemic, accurate information regarding the number of IDUs, their behaviours, presence, etc. still remains unavailable owing to the absence of roboust dateset. Moreover, since most IDUs are hidden because the use of injecting drugs is illegal and they do not want to disclose their identities owing to the stigma of discrimination associated with their behaviour, thus far, there is no single robust method to estimate the size of MARPs. Previously, several exercises for estimating the population size of various MARP groups have been undertaken by Nepal; FHI Nepal conducted such research under the leadership of the NCASC. However, no previous research has studied this MARP group for the entire country. Consequently, there is a lack of requisite data for an effective national response to address the HIV epidemic in the country and it is impossible to plan targeted programmes without this information.

This study on the mapping and size estimation of IDUs endeavours to overcome the above mentioned limitations and generate information regarding the size, location and behavioural dispositions of IDUs, which is essential for implementing suitable programmes in order to mitigate the proliferation of HIV and STI. The objective of this study was threefold: First, to develop comprehensive maps of the sites and locations where IDU activities occur by ensuring participation of the affected communities. Second, to estimate the district-wise and nationwide sizes of IDUs, using systematic extrapolation of the data from mapped districts. Third, to study the availability of and access to services, behaviours, risk factors, etc. of IDUs.

This study is not without limitations if one considers, for example, the hidden IDU population that may not be reachable by means of the mapping exercise, as stated above, for self-explanatory reasons. However, every effort has been made to ensure the highest quality of collected data and its analysis.

1.1: Country Profile

This section provides pertinent fundamental information that was duly considered in the research and formed the basis of the mapping and size estimation exercise: the geographical profile of Nepal, epidemic regions of the country, population, and ranking on certain human development indicators.

Situated in south Asia—with India to its south, China to its north and Tibet autonomous region of China to its east—the landlocked country of Nepal accounts for 0.3 percent and 0.03 percent of the total landmass of Asia and the earth, respectively. Nepal's total area is 147,181 square kilometres. The country shares an approximate 1,800 kilometres long porous border with India touching the states of Sikkim and West Bengal in the East, Bihar and Uttar Pradesh in the South, and Uttarakhand in the West, and an approximate 1,155 kilometres long border with China.

The country's topography is diverse. Situated at a height of between 70 metres above mean sea-level in Kechana Kalan of Jhapa and 8,848 metres above mean sea level in the mountainous region; Nepal's geographical landmass includes flatlands, hilly regions and mountainous regions. Although hilly regions cover 68 percent of Nepal's total land mass, the mountainous and the Terai regions cover 15 and 17 percent of the total area, respectively.

***Map 1.1:* MARPs mapping and population size estimation study - 2010/2011**

The map depicted above is only for illustration purposes and none of the partners in this study confirms the accuracy of the depicted limits and the territorial boundary of Nepal.

With the seat of political power at Kathmandu—the country's national capital—Nepal is divided politically into 5 developmental regions, 14 zones and 75 districts for administrative and governance purposes. Each district includes a number of Village Development Committees (VDCs) and/or municipalities that are determined according to the population, area and condition of urbanisation.

According to the National Census, the total population of Nepal in 2001 was 23.15 million with males and females accounting for 11.56 million and 11.59 million of the total population, respectively. With an annual population growth rate of 2.25 percent (Source: Central Bureau of Statistics (CBS)), the total population of Nepal has been projected at approximately 29 million in 2011. Although the population density in the country is 197 persons per square kilometres, there is variance between the hilly, mountainous and Terai districts. 13.9 percent of Nepal's citizens reside in urban areas (Source: CBS).

The largest ethnic population groups in Nepal are the Chhetris and Brahmins who account for 15.80 and 12.74 percent of Nepal's total population, respectively. Following the Chhetris and Brahmin ethnic groups, in terms of size, are the Magar, Tharu, Tamang and Newars in ascending order.

Although multiple languages/dialects are spoken in the country, the national language of Nepal is Nepali. Thus, although approximately half or 48.16 percent Nepalese consider Nepali as their mother tongue, other citizens speaking Maithili, Bhojpuri, Tharu, Tamang, Newar, Magar and Abadhi consider these languages/dialects as their mother tongue. 80.62 percent Nepalese practice Hinduism, whereas 10.74 percent practice Buddhism, 4.2 percent follow Islam, 3.60 percent follow the Kirat religion and 0.45 percent follow Christianity (Source: CBS).

The literacy rate in Nepal is increasing and this increase has particularly been seen amongst the female population. According to the 2008 National Literacy Survey, the total literacy rate among people over the age of 5 years was 63.2 percent, with males and females accounting for 74.7 point percent and 53.1 point percent, respectively. As compared with the 35.8 percent estimated literacy rate for females in 1998-1999, the increase is by a notable near 30 point

percent. The overall literacy rate of adults over the age of 15 has also increased from the estimated 44.5 percent in 1998 1999.

The increasing literacy rate has given rise to a dichotomy in that there are limited employment opportunities in Nepal. The unemployment rate in Nepal is estimated to have grown at a rate of 42 percent over the previous decade (NLFS-II, 2008). Therefore, a greater proportion of the population is exercising the option of taking up foreign employment opportunities. This migratory pattern of the total population is not a direct concern or risk for HIV. Nevertheless, it does heighten the vulnerability of HIV, particularly if unsafe sex is practiced with multiple partners, and unsafe infecting behaviour is adopted.

With the scaling up of the health sector, availability and access to health services has increased over the past decade. However, urban areas have seen a greater expansion of these services as compared to rural areas, where the health service levels remains unsatisfactory. Doctors are unavailable and as a result, government health facilities remain under staffed, although the cost for health services is relatively lesser than private hospitals. During the 2009-2010 fiscal year, there were a total of 117 government hospitals, 208 Primary Health Care Centres, 6 health care centres, 675 health posts and 3,127 sub health posts. The number of doctors and health assistants working in government health facilities were 1,361 and 7,491, respectively. This excludes the number of doctors and health assistants employed under the private sector hospitals that are urban centred.

Increased education and awareness of available programmes has resulted in an improvement in the utilization of family planning methods for birth control and as a preventive mechanism for STI. According to DoHS, in fiscal year 2009-2010, 23,53,532 people used various means of family planning.

1.2 Epidemic (Epi) regions and selection of districts for mapping

Although traditionally Nepal is divided into four epidemic (epi) zones or regions (Map 1.3) for national HIV programming and response delivery, for the purpose of the mapping exercise, the country was divided into six epidemic zones or regions, as highlighted in Map 1.2. This division was based on HIV prevalence risk and vulnerability by the Strategic Information Technical Working Group (SI-TWG) in Dhulikhel during November 2009. These six epidemic zones include (i) the Highway District region, which comprise 20 Terai districts and 6 hilly districts; major highways run through these districts, (ii) Kathmandu Valley region, which comprises the following three districts: Kathmandu, Bhaktapur and Lalitpur, (iii) Eastern Hill region, which comprises 13 hilly and mountainous districts of the eastern region, (iv) West and Mid-West Hills region, which comprises 13 hilly districts of the mid-western and western development regions, (v) Far-West Hills region, which comprises 7 hilly districts in the far-western region, and (vi) Remaining Hills region, which comprises the remaining hilly and mountainous districts of the central, western and mid-western regions. Each of these epidemic zones has distinct kinds of vulnerability factors to HIV and STI. Tables 1.1 and 1.2 pictorially represent the names of the districts according to the four- and six-region categorizations.

Map 1.2: Epidemic zones used for selections of districts for mapping

Map 1.3: HIV epidemic zones

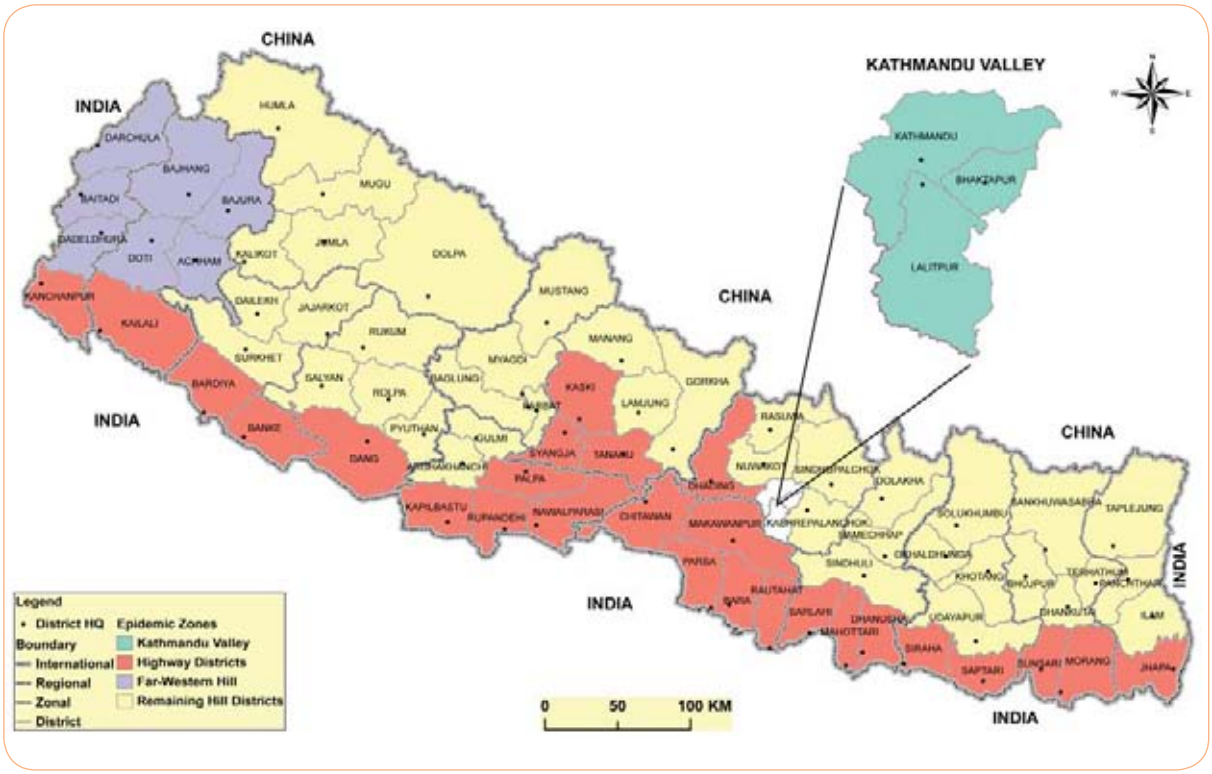


Table 1.1: Four-region categorization of epidemic (Epi) zones by districts

Epidemic zones and their respective districts	Number of districts	Names of districts
Kathmandu Valley	3	Kathmandu, Lalitpur and Bhaktapur
Highway Districts (Mahendra, Prithvi and Pokhara-Butwal highways)	26	Jhapa, Morang, Sunsari, Saptari, Siraha, Dhanusha, Mahottarai, Sarlahi, Rautahat, Bara, Parsa, Chitwan, Dhadhing, Makwanpur, Syangja, Kaski, Palpa, Rupendehi, Kapilbastu, Dang, Banke, Bardiya, Kailali, Kanchanpur, Tanahun and Nawalparasi
Far-western hill (7 hill districts of the Far-western development region	7	Bajura, Bajhang, Achham, Doti, Dadeldhura, Baitadi and Darchula
Remaining Hill Districts	39	Taplejung, Panchthar, Ilam, Dhankutta, Tehrathum, Sankhuwasabha, Bhojpur, Solukhumbu, Okhaldhunga, Khotang, Udayapur, Sindhuli, Ramechhap, Dolakha, Sindhupalchowk, Kavrepalanchowk, Nuwakot, Rasuwa, Gorkha, Lamjung, Manang, Mustang, Myagdi, Parbat, Baglung, Gulmi, Argakhanchi, Pyuthan, Rolpa, Rukum, Salyan, Surkhet, Dailekh, Jajarkot, Dolpa, Jumla, Kalikot, Mugu and Humla

Table 1.2: Six-region categorization of epidemic (Epi) zones by districts

Revised epidemic zones used for mapping	Number of districts	Names of districts
Kathmandu Valley	3	Kathmandu, Lalitpur and Bhaktapur
Highway Districts (Mahendra, Prithvi and Pokhara-Butwal highways)	26	Jhapa, Morang, Sunsari, Saptari, Siraha, Dhanusha, Mahottari, Sarlahi, Rautahat, Bara, Parsa, Chitwan, Dhadhing, Makwanpur, Syangja, Kaski, Palpa, Rupendehi, Kapilbastu, Dang, Banke, Bardiya, Kailali, Kanchanpur, Tanahun and Nawalparasi
Far-western hill (7 hill districts of the Far-western development region	7	Bajura, Bajhang, Achham, Doti, Dadeldhura, Baitadi and Darchula
Eastern Hill	13	Dolakha, Taplejung, Panchthar, Ilam, Dhankutta, Terathum, Khotang, Sankhuwasabha, Bhojpur, Solukhumbu, Okhaldhunga, Udyapur and Ramechhap
West and Mid-west hill	13	Myagdi, Parbat, Baglung, Gulmi, Arghakhanchi, Pyuthan, Rolpa, Rukum, Salyan, Surkhet, Dailekh, Jajarkot and Kalikot
Remaining Hill Districts	13	Lamjung, Gorkha, Sindhupalchowk, Sindhuli, Kavrepalanchok, Nuwakot, Rasuwa, Mugu,Humla, Dolpa, Jumla, Manang and Mustang

1.3: Role of IDUs in shaping the HIV epidemic

The IDU population group accounts for the largest proportion of HIV-positive people amongst the country. As mentioned earlier, it is difficult to determine the precise number of IDUs in the country owing to various limitations. According to a 2006 report, which was published by the United Nations Regional Task Force on Injecting Drug Use and HIV/AIDS in Asia and the Pacific Baseline Assessment, there were at least 19,500 IDUs in Nepal. According to the survey that was conducted by CBS in June 2007, currently there are 46,309 drug users in the country and 61.4% (28,439) of these drug users are injecting drug users. According to an Integrated Bio-behavioral Survey (IBBS) report (2007), HIV prevalence among injecting drug users was 34.7% in the country's capital, Kathmandu in 2007. In other places, the prevalence rates ranged from 6.8 percent to 17.1% during the same year.

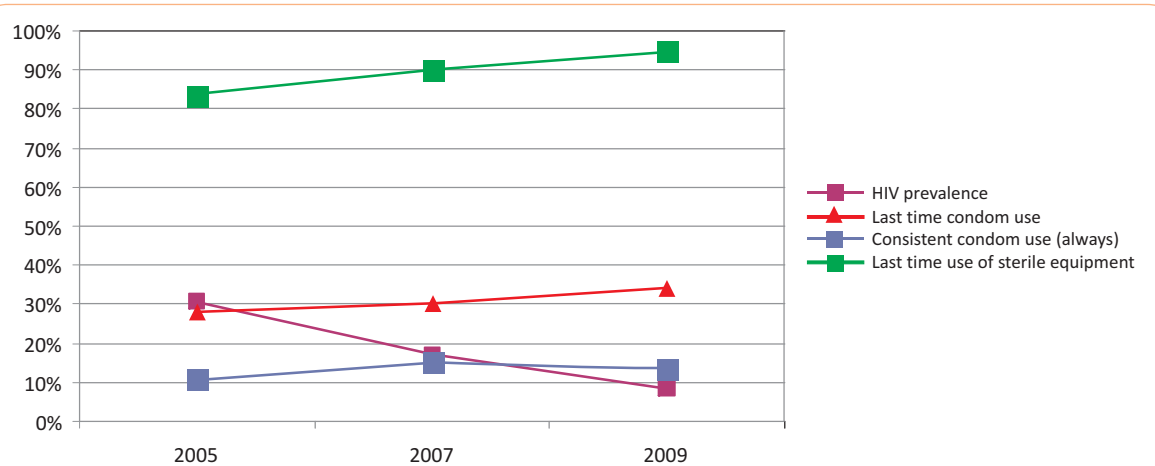
However, the HIV prevalence in this population group has shown a downward trend, which can be attributed to increased awareness levels and intervention programmes. This trend was confirmed by the most recent estimates provided by an Intregrated Bio-behavioural Survey (IBBS) that was conducted during 2005 2009; these estimates were obtained by using the weighted average of prevalence in different regions of the country (Figure 1.1). However, since this IBBS was conducted only in limited geographical areas, this reanalysis was conducted in order to estimate national level prevalence.

Although, IDUs are generally more educated, empowered and prosperous as compared to other MARP groups, that is, FSWs and MTCs, statistics indicate that IDUs play a more significant role in shaping the HIV epidemic in Nepal. UNAIDS Global Report on AIDS Epidemic 2010 indicates that the overall new cases of HIV infection in Nepal, India and Thailand reduced by more than 25 percent, which can be attributed to higher levels of awareness and interventions.

Research has shown that as compared to the previous decade, a greater number of IDUs currently are more knowledgeable regarding the transmission and prevention of HIV. The usage of condom and sterilized syringes, which are the two most important behaviours that primarily determine the decrease or increase in the epidemic, has improved over the recent years. In 2009, 51 percent IDUs had reportedly used condoms when they last had sex as compared to only 38 percent in 2007. Similarly, 99 percent IDUs had reportedly used sterilized syringes while injecting drugs in 2009 as compared to 96 percent in 2007 (UNGASS, 2010).

According to the UNAIDS Global Report on AIDS stigma and discrimination are the most significant barriers to providing treatment and care services to key population groups and HIV-positive people.

Figure: 1.1 Trends in condom use and HIV prevalence among IDUs in Nepal



Note: These are weighted averages of IBBS results of different regions in proportion to the size of IDUs in that region.

1.4 Review of the previously used estimates

It is challenging to estimate the number of IDUs in Nepal, which can be attributed to a lack of availability of credible data. In early 2003, UNAIDS, WHO and FHI conducted a workshop in Bangkok for estimating the proportion of the adult population in South Asian Countries that are HIV positive on the basis of sound data from these countries. Subsequently, under the direction and leadership of the NCASC, Nepal also conducted a similar study for estimating the size of the MAR population and proportion of adults suffering from HIV in Nepal.

According to the nationwide estimates that were released in the 1990s, the number of IDUs ranged between 2,500 and 4,000; evidently, 2,000 of these IDUs resided in the Kathmandu valley (Crofts, 1998) and 1,200 in Pokhara (Dixon 1999). Subsequently, higher estimations of IDUs were recorded across several towns. Prior to 2001, the size estimation of IDUs in the country was not based on scientific studies or estimation methods. A comprehensive ethnographic study, which was conducted for the first time for IDUs in 2001 (Centre for Research on Environment, Health and Population Activities (CREHPA), 2002), estimated that there were 4,000-5,000, 600 and 2,300 IDUs in Kathmandu, Pokhara and eastern Terai, respectively.

In 2004, a similar study conducted by CREPHA indicated that the estimated IDU population in the 22 Terai districts ranged between 3,500 and 4,000. Furthermore, CREHPA conducted a study in 2002 and 2004 in order to estimate the number of female IDUs in the 22 Terai districts, Kathmandu Valley and Pokhara, and concluded that overall, there were only approximately 200 female IDUs (CREHPA/FHI, 2002 and 2004). However, studies conducted by CREHPA, 2002 and New ERA, 2004 in order to estimate HIV prevalence in Nepal indicated the presence of 16,500 to 23,200 IDUs in the country in 2005. In order to estimate the number of IDUs, New ERA and CREHPA used a kind of modified enumeration method, which includes listing all 'locations' in the study area, enumeration (verification by triangulation) of the target population through members of the target population and people who have direct/indirect contacts with them; adjustment for hidden population, consensus among program, research and community people; and approval by government body after establishing a consensus among the technical group.

Thus far, four rounds of infection estimations have been conducted in Nepal (2003, 2005, 2007 and 2009). In each of these rounds, more updated and reliable data on HIV prevalence and estimated sizes of risk groups were employed. In the absence of a more appropriate method, the multiplier method was utilized for estimating the sizes of the risk groups in 2005, 2007 and 2009. NCASC estimated the national size of IDUs by using the population growth rate as a multiplier and in the infection estimates of 2009, a total estimate of 28,439 IDUs was used.

1.5: Definitions of key terminologies

The definitions of the key terminologies that have been approved by the Strategic Information Technical Working Group and endorsed by the Steering Committe to be applied to the mapping and size estimation exercise of IDUs are presented as follows.

Injecting Drug Users (IDUs): Males and females who inject various drugs into their muscles or veins for intoxication purposes. A person qualifies as a current IDU if he/she has engaged in injecting drugs within 12 months of the interview date and is aged 16 years and above (Note: people who inject drugs as a part of medical treatment are not categorized as IDUs).

Location: Location is a geographical area that is demarcated by a particular boundary, such as name of a colony, road etc. However, for the mapping of MARPs, the research team had the flexibility of defining the boundaries of a location in consultation with the key stakeholders at the district level.

Site: Site is an area within a location, wherein high-risk activities are practiced by the populations categorized as MARPs. A site may or may not be a hotspot, wherein MARPs may solicit, socialize and interact with other MARP members, have sex or share injecting drugs.

Hotspot: A hotspot is a smaller area within the site, such as restaurants, massage parlours, dance bars, night clubs etc., where above mentioned MARPs

gather/congregate for soliciting their clients or entering into high risk behaviour.

1.6: STI/HIV vulnerability among IDUs

There is a remarkable difference between the factors that make IDUs and other MARP groups vulnerable to HIV/STI. Unlike FSWs, poverty and lack of empowerment are not the primary factors that increase the vulnerability of IDUs. Rather, a few plausible reasons that increase the vulnerability of IDUs to STI and HIV is the lack of awareness regarding the use of non-sterile syringes, lack of accessibility to sterile syringes, legal issues and unemployment. Lack of awareness regarding the manner in which STI and HIV gets transmitted through non-sterile syringes was a major problem in the past. Recently, however, owing to increased media campaign and Non-Governmental organization (NGO) activities, a majority of the IDUs are aware that STI and HIV can be transmitted through non-sterile syringes. However, since the use of injecting drugs is illegal, the unavailability of sterile syringes at the time of need is a major concern that increases the vulnerability. Owing to the addictive nature of drugs, IDUs have little control over their urge to take drugs and are compelled to use non-sterile syringes if sterile syringes are not available at the time of need. Although they are aware of the risk involved, usually, the urge for drugs surpasses the need to focus on health safety. Furthermore, unemployment can be a plausible factor for drug use, as a positive relationship has been observed between IDU activity and excessive free time. It is also possible that many IDUs are clients of FSWs or may work as FSWs. The IDUs who work as FSWs are also exposed to the same vulnerability factors that are faced by other FSWs.

Owing to the ease of access to drugs, IDUs in Terai highway districts and smaller towns are more vulnerable to STI and HIV as compared to the ones in larger urban conglomerates. Since there are very few dispensaries and health clinics in the highway districts and small towns, new syringes may not always be available. Furthermore, owing to the social stigma attached to being an IDU, many IDUs experience apprehension in consulting doctors or accessing healthcare services.

The vulnerability factors for IDUs differ significantly with different epidemic zones. The highway districts region that comprise of nine Terai districts and six hilly districts are more vulnerable to STI and HIV owing to lower levels of awareness, high concentration of IDUs and a lack of accessibility to sterile syringes. In contrast, those in the valley districts are less vulnerable to STI and HIV owing to higher accessibility to sterile syringes and higher level of awareness.

The presence of IDUs in other epidemic zones—eastern hills, far-western hills, mid hills and other hills—is relatively lesser, with a few exceptions. Dhahran and Pokhara are major IDU hubs in the eastern and other hills, respectively. The vulnerability factors of both these hubs were comparable with that of Kathmandu.

CHAPTER

2

DATA AND METHODOLOGY

2.0 Introduction

Mapping MARPs is pertinent for supplying information to the national AIDS programme regarding geographical areas where HIV prevention efforts are particularly required. This is in due consideration of the concentrated nature of the HIV epidemic among specific sub-populations. By obtaining information regarding the geographical locations where MARPs of FSWs, MTCs and IDUs amalgamate across the country coupled with an estimation of their numbers, Nepal will be better equipped to target interventions and thus produce a tangible impact for reducing the number of people suffering from HIV infections in the longer term.

Mapping and size estimation in Nepal was conducted by following a methodology developed under the technical oversight of HSCB, NCASC, UN and other external development partners, who monitored the research agency that conducted this exercise at the districts to ensure that the prescribed standard norms for all MARP sub-categories were adhered to. The names of the representatives from these organizations, who formed the Steering Committee for ensuring the quality of this exercise, may be referred to under Appendix D. Steering Committee members' deliberations and dialogue amongst themselves as well as with other national and international technical experts resulted in the identification of the most suitable methodology for conducting this study in Nepal. Due consideration was attributed to the latest internationally prescribed methods for mapping and size estimation, as identified by the WHO/UNAIDS, that is, UNAIDS Global Reference Group, and were contextualized in order to meet the country's requirements and specifications.

This chapter details the methodology applied for mapping and estimating the size of MARPs in Nepal for reflecting the data accuracy, assurance, and comprehensiveness of the data sets. Section one

of this chapter focuses on the methodology, and section two describes the technique and process for extrapolating the data for producing national estimates of IDUs. The assumptions and limitations have also been highlighted in these two sections.

2.1: Methodology for mapping

This section describes the design and methodology for conducting the mapping exercise in 31 select districts in Nepal. Once a clear definition of IDUs and their risk activities was concurred upon, research teams were formulated for select geographical locations to accrue mapping and estimate data through a participatory approach involving the government and networks of community/local community organizations. Various data collection methods and tools were utilized by research teams and each of these methodologies are subsequently detailed in this section.

2.1.1: Operational strategies for collecting data

Data was captured by the research teams at the district, location and site levels for acquiring a comprehensive macro and micro geographical overview. Research teams, which included one representative from the research agency and one from the IDU community, were formed in each geographical location in order to collect data. Civil society representatives from the local IDU community, who were selected on the basis of their qualifications and interests, partnered the research teams conducting the mapping exercise. These representatives were included not only because of their knowledge on IDUs' behaviours, formation patterns and locations—amongst other insights—but also because it helped to make the study more inclusive. Moreover, since these community representatives would enhance the access to the IDU community, the overall data quality would be augmented. The Steering Committee also regarded the skills that the community members gained through participation in this study—besides receiving on the job training—as a constructive step for strengthening their productivity.

Data for the mapping and size estimation exercise was collated by focusing on stakeholder participation and increased community and government ownership at decentralized levels. The research team closely interacted with the District AIDS Control Committees (DACC) and NGOs working with the community for the following reasons: firstly, for identifying and listing locations; secondly, for indicating the estimated size of IDUs within the select geographical area on the basis of their experience on account of working in the district for a long period of time; thirdly, for obtaining leads on possibly Key Informants (KIs) for a district, location or site; fourthly, for receiving access to routine programme data. The list of IDU community members engaged in data collection and administration activities is provided in Appendix E.

The methods for data collection at district, location and site levels—using especially formulated tools—are detailed below. At the **district level,** the research team collected HIV information and ascertained IDU locations in both urban and rural areas by holding meetings with DACC and conducting one day district level consultations with major stakeholders. These included representatives from DACC, government agencies, NGOs, Community-based Organizations (CBOs), and media.

Focused discussions were held for firstly, determining issues associated with STI and HIV in the districts, such as the nature of the epidemic, change in the trajectory and factors attributing to this change; secondly, obtaining information on locations where IDUs congregate and operate—termed hotspots—and identifying key person(s) who are sufficiently knowledgeable for providing greater insights regarding the IDUs located at the hotspots; and thirdly, determining the estimated size of IDUs in each of the districts by seeking inputs from various programme and community representatives. Data was captured by using the specifically developed tool referred to as 'Tool 1'; Tool 1 can be referred to under Appendix C. In order to enable size estimation of IDUs at the location level, initially, the research team collected information on the sites where IDUs are concentrated by using specifically developed tools termed 'Tool 2'. Moreover, **Participatory Rapid Appraisal (PRA**) was conducted in locations with a minimum estimation of five IDUs. The tools utilized for data collection at the location level are indicated in Appendix C. The research group employed Tool 3 for collating the following two fundamental **site level** data: the total count of IDUs observed or interacted with, and the geographical and social

overview of a site. In other words, data was collected for understanding the landmarks of the site areas and location of MARPs in different parts of the site. Tool 3 is included in Appendix C of this report.

A free listing technique was deployed for a conducting comprehensive assessment of hotspots at the district, location and site levels. Using this technique, initially, the district, location and Village Development Committee levels were segmented into smaller operational areas and subsequently, 6-8 KIs were interviewed for obtaining broad perspectives on the mapped area. A geographical map of the area that highlighted the hotspots or sites and landmarks where IDUs congregated—as identified by the research team during the district level consultations—was utilized as a primary tool.

Following the broad mapping of hotspots, through adherence to research protocols, further information on IDUs present at the hotspots was collated through **group discussions** with mixed categories of **primary, secondary, and tertiary KIs.** Primary KIs were populations engaged directly in higher risk activities. Secondary key informants were populations closely associated with the primary informants. This would include the intermediaries. Tertiary key informants were populations that possessed information regarding IDUs and were usually involved with the secondary stakeholders. These informants could be working either for or against the interests of the primary stakeholders and included representatives from NGOs, government offices and armed forces. The PRA technique was also utilized at hotspots where the number of IDUs was estimated at over five.

The information that was collected during discussions with KIs and by using the PRA technique included the number of IDUs, busiest day, mobility pattern and most accessed services for the last seven days and for the last twelve months. The research team visited a site for three days at different points of time and observed the actual number of IDUs present at that time.

For obtaining behavioural and background information on IDUs, the research team interviewed a minimum of five randomly selected IDUs at all locations where over five IDUs were present. Tool 4 was utilized for obtaining and recording behavioural data.

2.1.2: Quality check measures

The quality of the mapping and size estimation was ensured by following a four-pronged strategy: selecting a skilled research team, building the research teams' capacities for mapping and size estimation by providing them with formal and on-the-job trainings, implementing a three-tier monitoring and supervisory structure, and revalidating the mapping and size estimation data across ten percent of the locations.

The research body that was responsible for conducting the mapping and size estimation exercises comprised the research staff, research fieldworkers, field executives, supervisors and investigators. According to their respective profiles, each personnel was provided specific terms of reference and a set of deliverables that they were accountable for. All the **personnel were selected** and appointed on the basis of their relevant past experience in mapping and association with the HIV and STI programme, and previous experience with IDU projects and/or related disciplinary fields. Those individuals who possessed direct associated experience were given preference. In addition, community representatives who were recruited to support the field research were selected on the basis of their past experience.

All field research teams—collectively comprising of 110 individuals—were required to attend and successfully complete a four-day **skill building training** that was conducted at the national capital. The research teams from West and East Nepal travelled to Kathmandu for attending this training program. The primary objectives of the skill building training were as follows: firstly, to orient participants on issues of sexuality, STI, HIV and high-risk behaviours. Secondly, to increase participants' understanding of IDU associated behaviours, holding dialogues with them regarding structural factors and socio-cultural norms that increase IDU vulnerability for HIV, and requesting them to self-introspect in order to enable them to ascertain their own abilities and attitudes to work with the population. Thirdly, to familiarize the participants with the research methodology, tools and techniques, the knowledge of which was necessary for them to discharge their functions effectively. Fourthly, to acquaint them with the questionnaires and other tools that they would be required to use for data collection. Fifthly, to train the participants on questionnaire administration

techniques, including approach and probing techniques. In addition, the training also covered topics like the importance of the use of appropriate language, necessity for using non-verbal expressions, effective documentation techniques and developing skills for handling situations wherein respondents may get agitated. Moreover, the significance and requirement for ensuring confidentiality and privacy, and dispensing the questionnaire only after receiving informed consent was emphasized as a part of the training. Finally, to build capacities on other fieldwork protocols that were standardized for implementation.

Local community members who were recruited to support the mapping and size estimation exercise received appropriate orientation covering a select few or all of the areas that were encompassed by the four-day national level training. The fieldwork conducted by the research team was **monitored** on a daily basis for overseeing activity implementation and providing supportive supervision and feedback. As mentioned previously, a three-tier monitoring system was formulated in a pyramid structure, wherein the research team supervisors formed tier one at the base of the pyramid, the research organization (Neilsen) and Steering Committee members formed tier two at the middle of the pyramid and HSCB nodal officers formed tier three at the top of the pyramid. The key responsibilities of each of the three monitoring teams are briefly highlighted here. They monitored activity implementation by research teams at both location and site levels on a daily basis for ensuring timely progression in mapping and size estimation, adherence to appropriate protocols and provision of sustained supportive supervision and feedback. Supervisors who were delegated from the research organization and Steering Committee members oversaw the mapping and size estimation at the district levels and provided the requisite technical inputs. Moreover, supervisors also periodically conducted field visits for providing supportive supervision. HSCB monitored the mapping and size estimation at the macro level. The monitoring and evaluation checklist developed for supporting these tasks was utilised by monitoring teams and can be accessed under Appendix F.

Within a period of three months of completing the fieldwork in the districts, **a revalidation of the mapping and size estimation exercise** was conducted in ten percent of the locations from each of the districts included in the study. This revalidation was conducted by an independent research team who adhered to the same protocols and methodology that was developed and adopted for the mapping and size estimation exercise. Considering that the revalidation team conducted three-day visits to each location, identified hotspots and conducted PRA wherever over five IDUs were concentrated, this was another important dimension for evaluating the overall quality of data collection. If any differentials in the results were noticed by the revalidation team, they were utilized for calculating the coefficient of range. This has been subsequently highlighted under section two of this chapter; however, prior to proceeding to section two, the limitations of the mapping exercise are summarized in the following sub-section.

2.1.3: Limitations of the mapping study

To the extent possible, the methodology for the mapping exercise was comprehensively and uniformly applied across the 31 districts; however, certain limitations, which are typical of a study of this scale, in attempting to estimate hidden population groups like IDUs are summarized as follows:

Firstly, a central assumption of the mapping and size estimates of IDUs at the hotspots was the definition of a **typical day**. A typical day was considered as the number of observations made and recorded at hotspots during three consecutive day visits at different time. Although this definition was applied to a majority of the districts, there were fluctuations among the observations owing to seasonal variations or changes in law and order situation at the hotspots, considering that IDUs do not receive legal sanctity and are largely stigmatized.

Thus, whenever police raids or protests are organised by certain social groups/organizations at a hotspot or location, it negatively influences the turn out of the IDU population and the accessibility of a research team to visit the site. Another factor that necessitates consideration is the mobility of IDUs from one location or district to the other. In order to overcome these weaknesses, which influence the size estimates of a population at a hotspot or location and are beyond the researchers' control, different levels of correction factors were employed for adjusting for frequency of the visit and avoiding duplication in the estimation of the population size.

Four correction factors were employed for estimating the size of IDUs on the basis of certain assumptions. These correction factors were generated at the national level on the basis of available data and in order to ensure stability in the distributions, these correction factors were made available to all the regions for ensuring uniform application to each district. However, considering the type of error that exists, applying these values uniformly across different regions may not be free from possible bias.

Secondly, although the research team was successful in observing and interacting with IDUs as required under the methodology terms for estimating the population at the hotspots, the number of interviews that were conducted for the behavioural survey in few locations was insufficient. This could be attributed to the fact that they were anxious about being labelled as IDUs, as also indicated by the IDUs themselves. Therefore, certain IDUs were unwilling to openly participate and disclose information. This weakness was addressed by developing proportional weights by using extrapolated figures of different regions.

Lastly the data from the mapped districts where thus far no targeted interventions (TIs) have been implemented must be read with the caveat that in absence of the provision of an enabling environment by means of TI's, it is difficult to approach MARPs.

2.2 Methodology for size estimation using mapping data

This section details the methodology employed for estimating the size of IDUs captured during the mapping exercise using Tools 1, 2 and 3 and the PRA technique, as highlighted under the previous section. Moreover, this chapter explains the various correction factors and adjustment factors, including assumptions and limitations, which have been applied to the data.

2.2.1: Application of correction factors

The data that was supplied by the IDU mapping exercise across 31 districts—using Tools 1, 2, and 3 and the PRA technique—enabled the estimation of the size of IDUs across hotspots, locations, and districts in Nepal.

In particular, the following three sources were considered for determining the correction factor that was required for arriving at the size estimate: first, the data included under the three columns of Tool 2—wherein KIs recorded the 'minimum,' 'maximum' and sizes of IDUs under respective columns—on the basis of their experience and interaction with the community; second, data under Tool 3 wherein the field research team recorded the 'minimum,' 'maximum' and 'estimated' sizes of IDUs following their visit to a hotspot on three consecutive days at different points of time; and third, the PRAs conducted at hotspots where over five IDUs were estimated.

The data that was obtained from different hotspots in five districts were reviewed one at a time. Once stability in the estimated number of IDUs was ascertained, the reported number of IDUs, based on observations and interactions at different hotspots, was used as a base estimate for applying correction factors at four levels. However, this was based on certain assumptions, which are presented as follows:

The **first assumption** was that the timings of the visits of IDUs to hotspots were fixed for over three days period. Therefore, the records of three consecutive days that were considered at different points of time may constitute the estimated number of IDUs operating from a hotspot in one full day. The **second assumption** was that the proportion of IDUs visiting multiple hotspots is uniform in different parts of a district. Following this, the **third assumption** was that the proportion of IDUs not visiting any hotspot—either for soliciting or for activities—is uniform across different parts of a district.

Additional details regarding the correction factors, assumptions and computational procedures are presented in Appendix A. As stated earlier, based on the abovementioned assumptions, four correction factors were computed for making estimations at the national level and applied to each district for determining the IDU size estimates. The correction factors were applied for adjusting the frequency of IDUs visiting a hotspot, duplication of IDUs visiting multiple spots, turnover of IDUs, and hidden population.

Adjustment for the frequency of IDUs visiting a hotspot

In any geographical area, there is inconsistency in the number of IDUs that visit all hotspots owing to varying trends across hotspots. In other words, although the level of activity at a hotspot varies on different days of the week, IDUs may visit certain hotspots more infrequently than other hotspots on different days. If IDUs visit hotspots less often than the period of recall used in the PRA technique or the period of observation, their probability of not visiting the hotspot during the period of data collection is high.

In order to prevent the undercounting of IDUs, a formula was applied using two different data sets. The first data set represented the total number of IDUs that were estimated through observation and interaction at particular hotspots on three consecutive days at three different points of time. This value was assumed to represent the number of IDUs operating from the hotspot. The second data set represented the frequency of visits to hotspots, which was derived from the behavioural survey of IDUs conducted at different hotspots using Tool 4. The formula that was applied for adjusting the frequency of visiting hotspots is given below:

Formula for adjustment of frequency

where, $S_1 = (Ci \times Pf \times fp) + (Ci \times Pf \times fp) + (Ci \times Pf \times fp)$,

where S_1 = Estimated total of IDUs in X district (i) after adjusting for the frequency,

C_i = Estimated number of current IDUs functioning in X on the basis of IDUs that were observed or interacted with,

P_f = proportion of IDUs visiting hotspots in a X district with frequency f_p

Adjustment for the duplication of IDUs visiting multiple hotspots

The likelihood of IDUs visiting more than one hotspot in a day or a week is rather high. In this context, there is a high probability that a particular KI's size estimates of IDUs include a certain proportion that is already included in the IDU size estimates drawn up by other KIs, thereby resulting in duplication. Moreover, field research teams visiting a hotspot may have noticed the same IDUs that are already included in the count of other field research teams.

In order to address such a case of duplication, an adjustment factor was applied in order to account for IDUs who visit one hotspot as frequently as other hotspots. The computational procedure required two types of data: the proportion of IDUs who visit multiple hotspots and the total size of IDUs at each of the hotspots. The proportion of IDUs is determined on the basis of the information that was collected whilst conducting PRA at each hotspot. This is subsequently aggregated in order to provide the national estimate. The weighted average is computed using this data. Table 2.1 presents the specific values of the different parameters that were used for estimating duplication for the Kathmandu Valley. The formula that was applied for adjusting this duplication is given below:

Formula for adjustment of duplication

$$S_2 = S_1 - ½(D_i),$$

where, S_2 = Estimated number after adjusting for duplication

S_1 = Estimated size after adjusting for frequency

D_i = Estimated number of current IDUs in district i who are estimated to operate from multiple hotspots

Adjustment for the turnover of IDUs

There exists an element of turnover of IDUs within the IDU population and it is imperative to consider this turnover during size estimation. In the context of this study, turnover implies the probability that at any given point and time, the IDU population includes those IDUs who have recently engaged in injecting drugs or have been doing so for a minimum specific duration, and those who no longer inject drugs.

It must be noted that turnover is distinct from frequency. The duration of being engaged in activities related to injecting drugs is independent from the frequency of actually injecting drugs. In this regard, a hypothetical example that can explain this distinction more effectively is the case of an IDU who, on an average, has been engaging in the act of injecting drugs for a period of ten 10 years. This is distinct from the number of times that

this IDU actually injects drugs on a daily, weekly or monthly basis and therefore, independent of the total number of years that the IDU has been engaged in the act of drug abuse. The formula that was employed for adjusting the turnover of IDUs is indicated below:

Formula for turnover adjustment

$$S_3 = S_2 + [T \times S_2/2_D],$$

where S_3 = Adjusted total size of IDU population over time T

S_2 = Estimated number of current IDUs after first two adjustments

T = Period of interest for the estimate (e.g. one year)

D = Average duration of belonging to IDUs

Table 2.1 presents the particular values of different parameters that were used for estimating the turnover for Kathmandu Valley.

Adjustment for the hidden population

Another aspect that was considered whilst determining the IDU size estimates was the number of IDUs that are estimated to remain hidden. Such hidden IDUs do not visit the mappable sites; therefore, appropriate adjustment factors were employed for considering this hidden population. Although ideally, this adjustment of hidden population should have been made on the basis of the findings of a broader survey of IDUs that could indicate the percentage of IDUs who preferred visiting public sites or meeting partners in private locations to the hotspots since this would have been an effective indicator of their preferred meeting areas; however, such a survey was beyond the scope of this research. Therefore, initially, the available researches on the subject in the country/region were used and subsequently, the correction factor was used.

Therefore, in this research, in order to estimate the number of hidden IDUs that were not included in the mapping exercise, the total number of IDUs in a district was inflated by the inverse of the proportion of the IDU population that was assumed to visit mappable sites. The formula that was applied in order to identify the hidden population is provided below:

Formula for hidden population adjustment

$$S = S_3/P,$$

where S = Adjusted total size

S_3 = Adjusted total size of IDU population over time T after adjusting for frequency, duplication and turnover

P = Estimated proportion of IDUs who do not visit mappable sites

Once the size estimates of the IDUs were finalized through the application of the four different level correction factors, the final estimates were presented as interval estimates with a coefficient of range, which was computed using the following formula:

$$\left(\frac{[\text{Maximum range} - \text{Minimum range}]}{[\text{Maximum range} + \text{Minimum range}]} \right) \times 100$$

The inputs for the computation of interval estimates were based on the number of IDUs that were estimated during the mapping exercise, irrespective of whether this estimation was conducted through observation or interaction. The difference between the estimated maximum and minimum numbers of IDUs obtained by using the three sources was halved and this value was added to and subtracted from the final estimates, after adjusting for all corrections, in order to yield the lower and upper limits of the final interval estimate, respectively.

Since the estimates are presented in range, for those wanting to use a point estimate, the use of mean of the range is suggested.

Based on the validation exercise the positive predictivity for IDU is 91% i.e. there may be a changes of 19% variance.

Table 2.1: Illustration of correction factors to estimate size of IDUs in Kathmandu Valley

Indicator		IDU
PRA estimate		1,341
Agreed upon estimate		1,026
Observed and interacted (S)		1,273
Frequency adjustment		
	P1	0.83
	P2	0.02
	P3	0.15
S1		**2,468.82**
Duplication adjustment		
	Ci	0.24
	Di	592.52
S2		**2,172.56**
Turnover adjustment		
	T	1.00
	Di	4.44
S3		**2,417.21**
Hidden population adjustment		
	P	0.60
S4		**4,028.69**
Maximum MARPs value		1,341
Minimum MARPs value		1,026
Range		157.60
S4+/-range		3,871
		4,186
Coefficient of Range		13.3

2.2.2 Protocols for extrapolating the size of IDUs in unmapped districts

Nepal has a total of 75 districts and IDU mapping and size estimation exercise was undertaken in less than half, that is, 31 of these districts. Although the total number of districts—including those that were selected for mapping and size estimation—was determined by considering the geographical distribution of the 75 districts in the six epidemic zones (used for mapping exercise) in the country, the mapping and size estimation exercise was conducted on the premise that the size of IDUs in unmapped districts would be estimated by extrapolating the data from mapped districts according to two rules and parameters. These two rules were developed and adhered to for the specific purpose of extrapolating the size of IDUs in unmapped districts and are presented as follows:

Rule 1. Each of the 44 districts, which are not included in the current mapping and size estimation exercise, were assessed on the basis of the following six parameters with the objective of effectively matching them with any of the 31 districts that were included in the mapping and size estimation exercise:

a. Percentage of urban population
b. Population density
c. Total adult population in the district as per the most recent estimates
d. Total length of highways across the district
e. Reported number of STI cases in the last 12 months
f. Special characteristics like drug trafficking routes

Once the mapped district that closely matched the unmapped district was identified, and the Steering

Committee had unanimously approved its suitability, the proportion of the total IDUs in the district was estimated against the total adult population that was aged between 15 and 49 years. This ratio was multiplied with the total adult population aged between 15 and 49 years in the unmapped district for which the extrapolation of IDUs was required. This method was employed for effectively extrapolating the number of IDUs in all the unmapped districts. In applying this method, the following two assumptions were made: first, the use of injecting drugs among children is negligible, and second, the proportion of adults engaged in injecting drugs over the age of 50 years is negligible. However, in the event that the mapping data reflected the presence of children and adults over the age of 50 years engaged in injecting drugs in particular districts, then Tool 4 was utilized for estimating the proportion of such drug users in these districts and the estimated numbers were reduced prior to estimating the proportion of IDUs to the total adult population.

Rule 2. In the event that a suitable match for the unmapped district could not be identified according to the parameters specified under Rule 1, an average of the ratio of the two districts from the same epidemic zone was considered for the purpose of extrapolation. A detailed application of the protocols was developed for the extrapolation exercises and this is explained in Appendix B.

2.2.3 Limitations of extrapolation

Since the scheme of extrapolation as explained above depends upon various assumptions related to the similarity of unmapped districts with mapped districts, it is recommended that the results for unmapped districts be viewed in this context. It is recommended that further exploratory studies in unmapped districts be undertaken in order to obtain the numbers first hand and subsequently plan for the programmes.

CHAPTER

3

RESULTS OF MAPPING AND SIZE ESTIMATION

This chapter details the national, regional and district level data on the number and location of hotspots, number and location of IDUs, and number and location of service centres available for providing treatment, care, and support for IDUs. Although the estimated numbers are provided in the form of ranges, the use of means is suggested to arrive at point estimates.

3.1: District-wise variation in estimated number of IDUs

The size estimation exercise indicates the variance in IDU sizes across regions and within different districts of a region. This section presents the estimated size of IDUs firstly, in the six HIV epidemic regions used for mapping, namely, Highways Districts, Kathmandu Valley, Eastern Hills, West and Mid-West Hills, Far-Western Hills, and Remaining Hills, and secondly, in the districts that were selected for the study within each region. Thirdly, it highlights the three districts with the maximum and minimum number of IDUs across the six regions and finally, it highlights the IDUs concentrated in different districts. Tables 3.1a and 3.1b provide individual district-level IDU size estimates in mapped and unmapped districts.

Detailed districts report are avaiable at HSCB with the detailed maps of hotspot and other datasets that can be extremely useful for program managers to plan and monitor the programs. However, as agreed upon by steering committe, in order to safeguard the confidentiality sharing of these is limited for this purpose only at the sole discretion of HSCB.

The mapping and size estimation exercise estimates the number of IDUs in Nepal to be between 30,155 and 33,742—with a 5.8% coefficient of range—after all necessary corrections and adjustments are incorporated. In terms of the presence of IDUs across epidemic regions, the Highway Districts region has the largest IDU population, with the number

of IDUs in the range of 24,448 to 27,410, followed by the Kathmandu Valley region where the number of IDUs ranges between 4,341 and 4,758[1]. The IDU population is estimated to be between 397 and 471 in the Eastern Hills region and in the range of 165 to 184 in the West and Mid-West Hills. The estimated size of IDUs is in the range of 53 to 59 in the Far-Western Hills region and in the range of 751 to 860 in the Remaining Hills region.

In the Highway District region, the maximum IDUs are reported in the Kaski district, at between 3,187 and 3,477, followed by Chitwan and Morang, where the number of IDUs are expected to be between 2,001 and 2,208, and between 1,973 and 2,218, respectively. In this region, Syangja has the minimum estimated number of IDUs, ranging from 168 to 200. Seven districts of this region, namely, Sunsari, Siraha, Mahottari, Sarlahi, Parsa, Nawalparasi, and Rupandehi, reportedly have between 1,000 and 2,000 IDUs. Similarly, Morang, Chitwan, and Kaski districts have more than 2,000 IDUs.

In the Kathmandu valley region, the number of IDUs is expected to range between 2,648 and 2,883 in the Kathmandu district, between 845 and 958 in the Bhaktapur district, and between 848 and 917 in the Lalitpur district. Among the districts of Eastern Hills, the maximum number of IDUs are estimated to be present in Ilam district, where the population ranges from 100 to 135. In the West and Mid-West Hill region, the mapped district of Surkhet has between 36 and 39 IDUs and all other districts of the region have low IDU prevalence.

District-wise distribution of IDUs in the Remaining Hill region shows Kavre district with the maximum number of IDUs, ranging from 431 to 499. Districts of Sankhuwasabha, Achham, Baitadi, Rasuwa, Manang, Mustang, Dolpa, Mugu, and Humla are estimated to have very low number of IDUs.

Table 3.1a: Estimated size of IDUs in mapped districts

Regions	District	IDU		
		Final Estimate (lower)	Final Estimate (upper)	Coefficient of Range
Eastern Hill		**100**	**135**	
	Ilam	100	135	89.7
Highway Districts		**18,900**	**21,134**	
	Jhapa	690	728	9.3
	Morang	1,973	2,218	22.7
	Sunsari	1,580	1,794	25.1
	Saptari	237	282	37.8
	Dhanusa	205	232	24.3
	Rautahat	564	645	26.9
	Bara	728	918	31.3

1 *The number of IDUs in Kathmandu valley, as estimated through this study is much lower than that reported by regular programme reach, which may be a reflection of a sharp reduction of IDU activities in hotspots on the days when the field work was conducted or due to other extraneous factors and is indicative of a need for further analysis to determine the reasons behind the variance.*

Table 3.1a: Contd...

Regions	District	IDU		
		Final Estimate (lower)	Final Estimate (upper)	Coefficient of Range
	Parsa	1,518	1,817	39.6
	Makwanpur	477	504	9.5
	Chitwan	2,001	2,208	18.4
	Nawalparasi	1,543	1,812	34
	Tanahu	347	380	16.8
	Kaski	3,187	3,477	16
	Syangja	168	200	38.1
	Rupandehi	1,919	1,960	3.5
	Kapilabastu	404	457	24.2
	Banke	597	669	22
	Kailali	419	435	6.3
	Kanchanpur	343	398	30.7
Kathmandu Valley		**4,341**	**4,758**	
	Kathmandu	2,648	2,883	15.5
	Lalitpur	848	917	14.1
	Bhaktapur	845	958	24.7
West and Mid West Hill		**36**	**39**	
	Surkhet	36	39	14.3
Remaining Hill		**431**	**499**	
	Kavre	431	499	30.1
Mapped districts with low MARPS presence (Sankhuwasabha, Achham, Mustang, Mugu, Baitadi, Myagdi)		**37**	**41**	**5.8**

The four districts that have the maximum number of IDUs across the country, in descending order, are Kaski with 3,187 to 3,477 IDUs, Kathmandu with 2,648 to 2,883 IDUs, Chitwan with 2,001 to 2,208 IDUs and Morang with 1,973 to 2,218 IDUs. Except Kathmandu all of these were in the highway district region.

A comparative analysis of IDU sizes across districts indicates that 43 districts across the country have an estimated number of less than 100 IDUs in a district, 11 districts have between 100 and 500 IDUs, 10 districts have between 500 and 1,000 IDUs, whereas 11 districts have an estimated presence of more than 1,000 IDUs in each district.

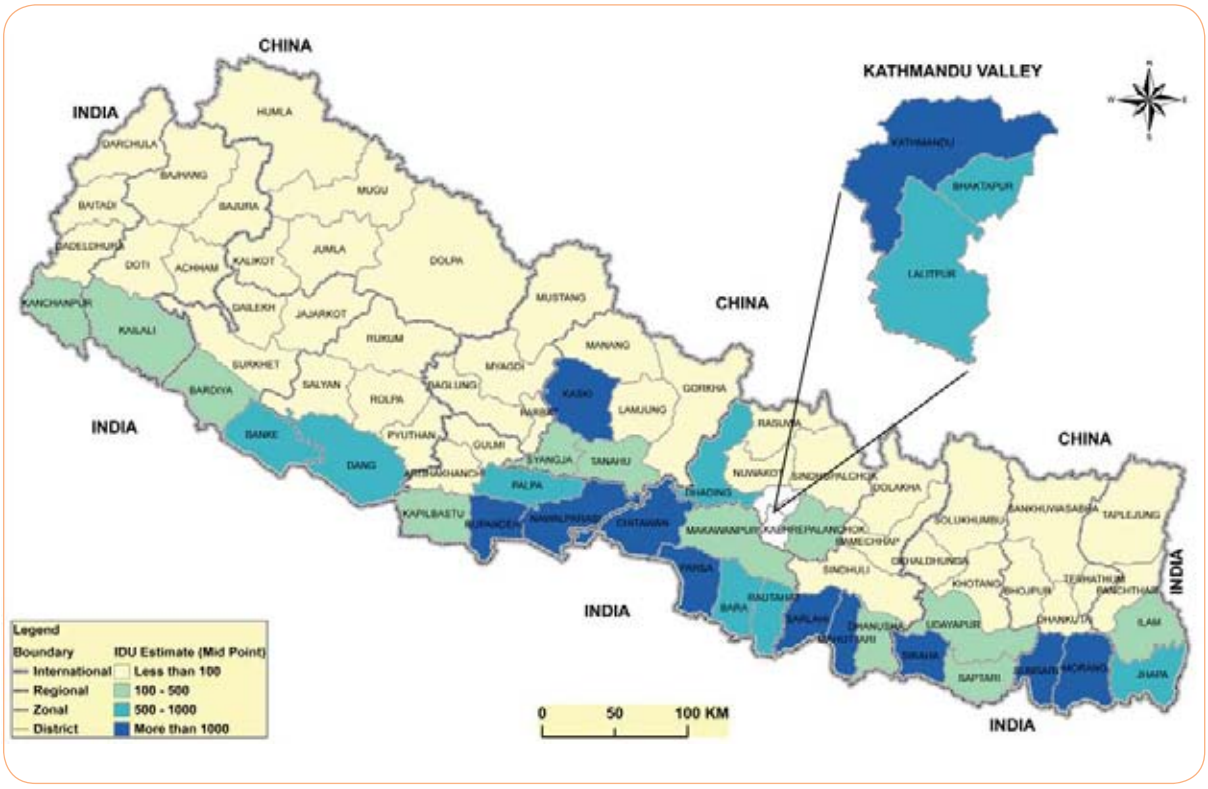
None of the Highway Districts has less than 100 IDUs. Eight districts are reported have between 100 and 500 IDUs, and another eight districts have between 500 and 1,000 IDUs. The remaining 10 districts of this region have more than 1,000 IDUs. In the Kathmandu Valley, Lalitpur and Bhaktapur districts had 500 to 1,000 IDUs, and Kathmandu district has more than 1000 IDUs. In the Eastern Hills, only Ilam

and Udayapur have 100 to 500 IDUs, and less than 100 IDUs are estimated in the Remaining districts. All districts of Western and Mid-Western Hills and Far-Western Hills have less than 100 IDUs. In the Remaining Hills region, only Kavre district has a presence of more than 100 IDUs.

Table 3.1b: Estimated size of IDUs in unmapped districts

Regions	District	Final Estimate (lower)	Final Estimate (upper)	Coefficient of Range
Eastern Hill		**290**	**328**	
	Dhankuta	65	74	5.8
	Udayapur	112	127	5.8
	<50 (Taplejung, Terhathum, Panchthar, Bhojpur, Khotang, Okhaldhunga, Solukhumbu, Ramechhap, Dolkha)	113	127	5.8
Highway Districts		**5,548**	**6,276**	
	Siraha	1,038	1,174	5.8
	Mahottari	1,013	1,146	5.8
	Sarlahi	1,163	1,316	5.8
	Dhading	547	619	5.8
	Palpa	842	952	5.8
	Dang	510	577	5.8
	Bardiya	435	492	5.8
West and Mid West Hill	<50 districts (Parbat, Gulmi, Argakhanchi, Baglung, Pyuthan, Rukum, Rolpa, Salyan, Jajarkot, Dailekh, Kalikot)	**125**	**141**	**5.8**
Far-Western Hill	<50 districts (Doti, Dadeldhura, Bajura, Bajhang, Darchula)	**36**	**40**	**5.8**
Remaining Hill		**311**	**351**	**5.8**
	Sindhuli	74	84	5.8
	Nuwakot	76	86	5.8
	Gorkha	65	73	5.8
	<50 distrcits (Sindhupalchok, Rasuwa, Lamjung, Manang, Dolpa, Jumla, Humla)	96	108	5.8

Map 3.1: Concentration of IDUs in different districts of Nepal



3.2: Geographical distribution of hotspots of IDUs

This section details the geographical distribution of hotspots across the six proposed epidemic regions and in districts within each region.

During the study, 728 hotspots for IDUs were identified in 357 locations across Nepal. As indicated in to Table 3.2, the Highway District region had the maximum number of locations and hotspots with 233 locations and 554 hotspots, followed by the Kathmandu Valley region, which had 100 locations, and 145 hotspots.

In the mapping study, 19 districts of the Highway Districts region were mapped for IDUs and all the mapped districts were found to have IDU hotspots. Kaski and Rupandehi districts had the maximum number of hotspots with 77 hotspots each, followed by Chitwan and Kathmandu districts, which had 70 hotspots each for IDUs. In descending order, more than 60 different hotspots were present in three districts of Chitwan, Rupandehi, and Kaski, whereas between 60 and 40 hotspots were reported in two districts namely, Sunsari and Bara. Between 40 and 20 hotspots were found to be present in four districts: Jhapa, Morang, Parsa and Nawalparasi. Less than 20 hotspots were found in the following 10 districts: Saptari, Dhanusha, Rautahat, Makwanpur, Tanahu, Syangja, Kapilbastu, Banke, Kailali, and Kanchanpur. Dhanusha district had the minimum number of hotspots with only 7 hotspots.

A total of 145 hotspots were identified in Kathmandu Valley. Among those hotspots, 70 were in Kathmandu district, 33 in Lalitpur district, and 42 were in Bhaktapur districts. In the Eastern Hills region, the mapping exercise for IDU was conducted in Sankhuwasabha and Ilam districts, and although Sankhuwasabha had a negligible number of hotspots, Ilam had 8 IDU hotspots.

Similarly, in West and Mid-West Hill region, the mapping exercise for IDU was conducted in Myagdi and Surkhet districts. Three IDU hotspots were reported in Surkhet whereas Myagdi did not have any visible hotspot. In Far-Western Hill Region, IDUs were mapped in Achham and Baitadi districts. No hotspots were reported to be present in either of these districts. Kavre, Mustang, and Mugu of the Remaining Hill region were mapped for IDUs and although 18 IDU hotspots were reported in Kavre, no hotspot was reported in Mustang and Mugu districts.

Table3.2: Distribution of locations/hotspots across different mapped regions/districts of Nepal

Regions	Districts	No. of Locations	No. of Hotspots
Nepal		**357**	**728**
Eastern Hill		**8**	**8**
	Ilam	8	8
	Sankhuwasabha	0	0
Highway Districts		**233**	**554**
	Jhapa	8	25
	Morang	14	33
	Sunsari	15	54
	Saptari	7	8
	Dhanusa	2	7
	Rautahat	7	11
	Bara	9	45
	Parsa	17	27
	Makwanpur	10	18
	Chitwan	26	70
	Nawalparasi	6	25
	Tanahu	9	18
	Kaski	37	77
	Syangja	8	9
	Rupandehi	26	77
	Kapilabastu	8	11
	Banke	13	18
	Kailali	8	9
	Kanchanpur	3	12
Kathmandu Valley		**100**	**145**
	Kathmandu	45	70
	Lalitpur	25	33
	Bhaktapur	30	42
West and Mid West Hill		**1**	**3**
	Myagdi	0	0
	Surkhet	1	3
Far-Western Hill		**0**	**0**
	Achham	0	0
	Baitadi	0	0
Remaining Hill		**15**	**18**
	Kavre	15	18
	Mustang	0	0
	Mugu	0	0

3.3: Availability and accessibility of venues for needle exchange, condom outlets and VCT/STI services

This section presents information gathered during the mapping study on the availability of sites for needle exchange, condom outlets, and VCT/STI services available to IDUs within a one kilometre range of a hotspot. Following a country level overview, regional details are provided in the subsequent paragraphs.

Services for IDUs at locations within a kilometre of the mapped hotspots were identified in order to determine accessibility. It was seen that 38.6% of the total IDU hotspots across Nepal had sites for needle exchange within a kilometre, 37.6% of the hotspots had condom outlets within a kilometre, and 33.9% of the hotspots had VCT/STI service within one kilometre of hotspots.

Dhanusa, Syangja, and Surkhet districts had no hotspots with sites for needle exchange, condom outlets or VCT/STI service within a one-kilometer range. Six districts were found to have more than 60% hotspots with site/s for needle exchange within one kilometer. Eight districts reported having more than 60% hotspots with condom outlets within one kilometer while 4 districts had more than 60% hotspots with VCT/STI service within a one-kilometer range.

Regarding the regional distribution and accessibility as highlighted in Table 3.3, 33.8% of the hotspots in the Highway District region have site(s) for needle exchange within a distance of one kilometre. Approximately 38% hotspots in the region have condom outlets and 32% hotspots have VCT/STI services within the same distance. None of the hotspots in the six mapped districts of this region, Saptari, Dhanusha, Rautahat, Nawalparasi, Tanahu and Syangja, had access to sites for needle exchange within a one kilometre distance. Similarly, no condom outlets were located within a one kilometre distance of the hotspots in the districts of Dhanusha and Syangja. No VCT/STI services were found within a one kilometre range of the hotspots in the districts of Saptari, Dhanusha, and Syangja.

In terms of availability of sites for needle exchange, more than 80% of the hotspots in the districts of Jhapa and Morang had sites for needle exchange within a one kilometre distance. Between 40% and 80% of the hotspots in the five districts of Bara, Makwanpur, Rupandehi, Kapilbastu and Kanchanpur had site(s) for needle exchange within a one kilometre range. Less than 20% of the hotspots in the districts of Chitwan, Kaski, Banke, and Kailali had the same accessibility to sites for needle exchange.

In terms of the availability of condom outlets, more than 80% of the IDU hotspots in Jhapa and Morang districts had condom outlets within a one kilometre range. 40%–80% of the hotspots in eight districts of Saptari, Rautahat, Bara, Parsa, Makwanpur, Nawalparasi, Tanahu, and Kapilbastu had condom outlets within a one kilometre distance. Less than 20% of the hotspots in Chitwan, Banke and Kailali districts had condom outlets within the same range.

More than 80% of the hotspots in the Morang and Rautahat districts had access to VCT/STI services within a one kilometre distance. Between 40% and 80% hotspots in the four districts of Sunsari, Makwanpur, Tanahu and Kapilbastu had condom outlets within a distance of one kilometre, whereas less than 20% of the hotspots had similar accessibility to VCT/STI services in the districts of Nawalparasi, Rupandehi, and Kailali.

In the Kathmandu Valley region, 95% of the hotspots in the Bhaktapur district, approximately 39% of the hotspots in Lalitpur district and 40% of the hotspots in Kathmandu district were located at a distance of one kilometre from site(s) for needle exchange. Condom outlets within a kilometre of the hotspots were reported in 37% of the hotspots of Kathmandu district, 33.3% of the hotspots of Lalitpur and in 17% of the hotspots of Bhaktapur. VCT/STI services were reportedly available in more than half of the IDU hotspots in Lalitpur and Bhaktapur district, whereas in Kathmandu only 19% of the hotspots had such accessibility to the services within one kilometre.

In the Eastern Hill region, all IDU hotspots in Ilam had condom outlets within a distance of one kilometre; however, none of those hotspots had site(s) for needle exchange and VCT/STI services within the same distance.

In West and Mid-West Hill region, none of the above-mentioned services was available in those districts where IDUs were mapped. In Remaining Hill region, 72% of the reported IDU hotspots in the mapped district of Kavre had site(s) for needle exchange and condom outlets within one kilometre range, and only approximately 28% of the hotspots had VCT/STI services within that range.

Table3.3: Availability and accessibility of venue for needle exchange, condom outlets and VCT/STI service

Regions	Districts	% of Hotspots having venue/site for needle exchange within one kilometre	% of Hotspots having condom outlets within one kilommetre	% of Hotspots having STI/VCT service within One kilometre
Nepal		**38.6**	**37.6**	**32.8**
Eastern Hill		**0.0**	**100.0**	**0.0**
	Ilam	0.0	100.0	0.0
	Sankhuwasabha	NA	NA	NA
Highway Districts		**33.8**	**37.7**	**32.1**
	Jhapa	84.0	84.0	28.0
	Morang	87.9	87.9	90.9
	Sunsari	35.2	37.0	48.1
	Saptari	0.0	62.5	0.0
	Dhanusa	0.0	0.0	0.0
	Rautahat	0.0	72.7	81.8
	Bara	44.4	57.8	28.9
	Parsa	37.0	63.0	25.9
	Makwanpur	55.6	55.6	72.2
	Chitwan	7.1	5.7	30.0
	Nawalparasi	0.0	40.0	8.0
	Tanahu	0.0	72.2	44.4
	Kaski	7.8	20.8	24.7
	Syangja	0.0	0.0	0.0
	Rupandehi	62.3	22.1	9.1
	Kapilbastu	54.5	54.5	45.5
	Banke	16.7	11.1	38.9
	Kailali	11.1	11.1	11.1
	Kanchanpur	75.0	33.3	25.0
Kathmandu Valley		**55.9**	**30.3**	**38.6**
	Kathmandu	40.0	37.1	18.6
	Lalitpur	39.4	33.3	51.5
	Bhaktapur	95.2	16.7	61.9
West & Mid West Hill		**0.0**	**0.0**	**0.0**
	Myagdi	NA	NA	NA
	Surkhet	0.0	0.0	0.0
Far-Western Hill		**NA**	**NA**	**NA**
	Achham	NA	NA	NA
	Baitadi	NA	NA	NA
Remaining Hill		**72.2**	**72.2**	**27.8**
	Kavre	72.2	72.2	27.8
	Mustang	NA	NA	NA
	Mugu	NA	NA	NA

NA- Not available

CHAPTER

4

BEHAVIOURAL CHARACTERISTICS OF INJECTING DRUG USERS

Consideration of the socio-demographic and behavioural characteristics of key populations at whom the HIV programs and interventions are directed is crucial, for ensuring their success in increasing access to and use of facilities and services. Research evidence firmly points to the need for considering various individual, interpersonal, social, and environmental factors that influence the risk for HIV infection, as well as behavioural patterns, including age of initiating injecting drug use, sharing of needles, number and types of partners, combination of alcohol/drug use and risky sexual practices, HIV/STI prevention behaviours, other sexual practices, etc. These factors may affect the acceptance and adoption of a specific prevention approach and may be critical in determining the use, acceptability, and potential efficacy of prevention strategies.

This chapter presents findings from the behavioural survey conducted amongst the IDUs during the mapping and size estimation exercise in the districts. The first section provides the background information on the surveyed population, patterns of their needle sharing and sexual behaviour, and the subsequent sections summarize the use of treatment and care services.

4.1. Background characteristics

Background characteristics are important factors that shape the vulnerability and risk behaviour of the key population and design programmes to mitigate their risks of contracting HIV/STI. As a part of the mapping and size estimation study, 1,471 IDUs from diverse backgrounds were interviewed across the selected districts using structured questionnaires to determine their behavioural characteristics. The mapped background characteristics included age, marital status, migratory status, living arrangements and the behavioural characteristics included sexual practices, drug injecting habit, testing and treatment behaviours etc. The behavioural data has been adjusted in proportion to the weight of the sizes of IDUs present in the districts.

This section presents the demographic profile of their demographic and behavioural characteristics.

Table 4.1 highlights that most IDUs are above the age of 20 years, with 61.6 % reporting to be in the age group of 20 to 29 years 22.7% reporting to be aged 30 years or above. IDUs were found to have higher levels of educational attainment as compared to the other MARP groups with 41.7% of the IDUs having completed 10 or more years of education and 37.4% having 6-10 years of education. Only 7.8% of the interviewed IDUs across the country reported having received no formal education.

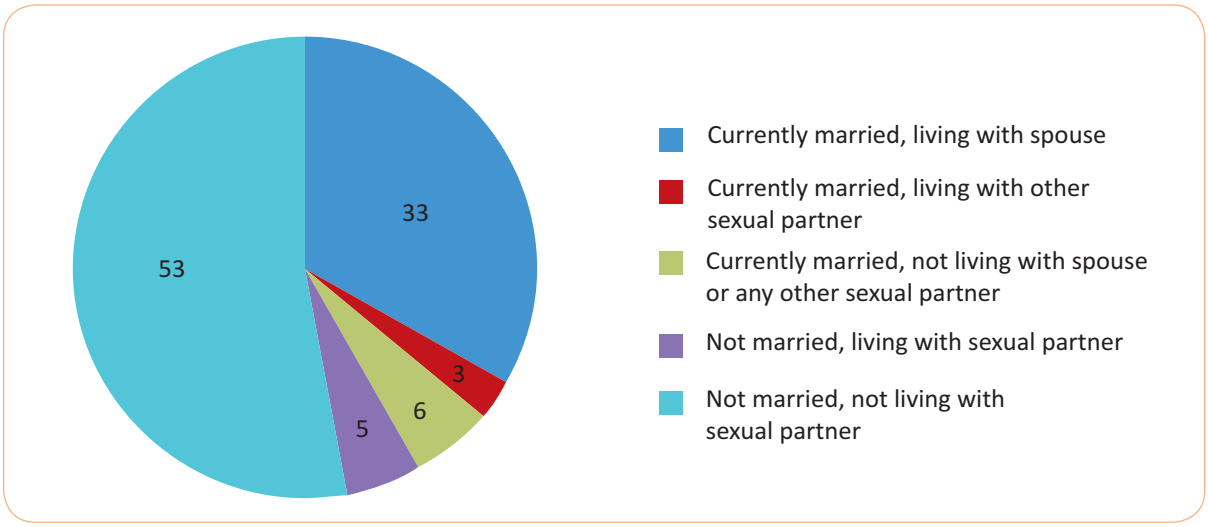
With 59.6% of the IDUs reporting to be unmarried and 25.4% of the interviewed IDUs reporting to be migrants, the population of unmarried IDUs which is operating from different regions needs to be duly considered while planning programs and interventions for injecting drug use and HIV-related high risk behaviour.

It must be noted that 94.3% of the interviewed IDUs were males. Almost 60 % of the IDUs were from the Highway Districts and 39.5 % were from Kathmandu Valley. Interviewed IDUs from other epidemic regions constituted less than 1% of the total interviewed IDUs. Hence, the behavioural profiles are reflective of the behavioural profiles of mainly male IDUs from these regions. However, the results have been weighted in order to make them representative of the country as a whole in proportion to the sizes of IDUs.

Table 4.1: Percentage distribution of IDUs by selected background characteristics

Background characteristics	Percentage of IDUs	No. of IDUs (un weighted)
Age		
Below age 20	15.7	249
20-29 years	61.6	876
30 and above	22.7	346
Educational qualification		
No formal education	7.8	123
Upto 5 years	13.1	206
6-10 years	37.4	547
More than 10 years	41.7	595
Marital status		
Ever married	40.4	612
Never married	59.6	859
Migratory status		
Migrants	25.4	377
Non-migrants	74.6	1,094
Sex		
Male	94.3	1,393
Female	5.7	78
Epidemic region		
HD	59.9	1,096
KV	39.5	354
RH	0.6	21
Total	**100.0**	**1,471**

Figure 4.1: Distribution of IDUs by their marital status and living arrangements



As highlighted by Figure 4.1, classification of IDUs by their marital and living arrangement shows that 33% of the IDUs are currently married and cohabiting with their spouses, which may indicate that their identities may be hidden, owing to their continued acceptance by their family members. At 48% of the interviewed IDUs, a large proportion reported being unmarried and not cohabiting with any sexual partner . In contrast, 8% of the IDUs reported cohabitation with another sexual partner, irrespective of their marital status, making them more vulnerable to the dual risks of injecting as well as sexual transmission.

It is observed from Table 4.2 that approximately 31.5% of the IDUs have at least one dependent child younger than 16 years. Out of these, 16.5% of the IDUs have only one dependent child, while 8.9% have two dependent children and 6.1% of the IDUs reportedly have three or more dependent children. The mean number of the children who are younger than 16 years age is less than 1 per IDU.

Table4. 2: Percentage distribution of IDUs by number of children below the age of 16 years

No. of living children below age 16	Percent	No. of IDUs
0	68.5	989
1	16.5	240
2	8.9	143
3+	6.1	99
Total		**1,471**
Mean number of children below the age of 16 years	**0.83**	

4.2: Behavioural factors

The behavioural survey was conducted with the objective of gaining an understanding of IDUs' HIV risk behaviour in order to provide insights while designing strategies and interventions to combat the HIV epidemic as well as to enable intervention monitoring. Studying behavioural factors is essential, considering that they form covariates of risk and vulnerability of STI/HIV among IDUs. The following section presents an analysis of risk behaviours including age at which injecting drugs were used for the first time, alcohol consumption and needle sharing by selected background characteristics in order to obtain insights into the level of potential risk for HIV acquisition and transmission.

With reference to the age at which injecting drugs were used for the first time, Table 4.3 and Figure 4.2 highlight that 37.8% of the IDUs in Nepal started injecting drugs before attaining the age of 20 years, 44% of the IDUs started injecting drugs while in the age group of 20-24 years and 17.6% started injecting drugs after attaining the age of 25 years. The size estimation exercise data indicates that introduction to substance abuse is recent, which is indicated by the comparison of the ages at which injecting drugs were used for the first time and the current ages of IDUs. Of the interviewed IDUs, a majority of them or 59% of the IDUs who are currently in the age of 30 years or above started injecting drugs after attaining the age of 25 years. Likewise, a majority or 62% of the IDUs who currently belong to the age group of 20 and 29 years started injecting drugs when they were in the age group of 20-24 years.

Educational attainment showed a marginal negative correlation with the age at which injecting drugs were used for the first time, because a higher proportion of IDUs with more than 10 years of education reported initiation into injecting drugs when they were aged under 20 years or in the age group of 20 and 24 years, as compared to IDUs with no formal education, 40% of whom began injecting drugs after attaining the age of 25 years.

Further, IDUs who were unmarried and living in the Kathmandu Valley region were more likely to be initiated into injecting drug use when they were under the age of 25 years, as compared to their counterparts, who were more likely to start injecting drugs after attaining the age of 25 years.

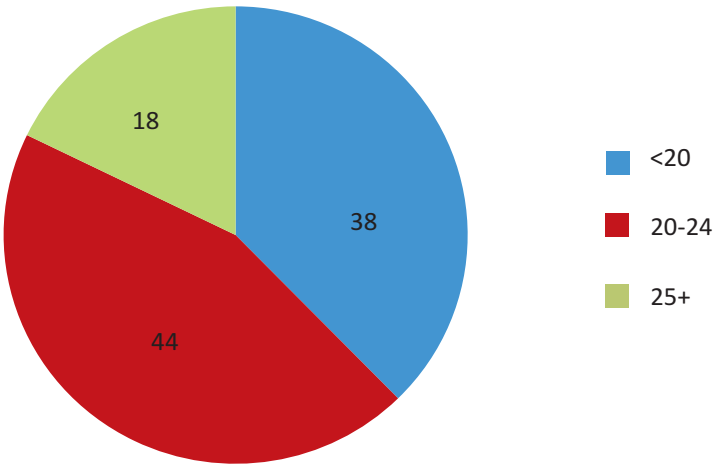
Table 4.3: Percentage distribution of IDUs by the age at which they used injecting drugs for the first time and selected socio-economic characteristics

Background characteristics	<20	20-24	25+	No. of IDUs (un weighted)
Age				
Below age 20	100.0	0.0	0.0	249
20-29 years	31.1	62.2	6.7	876
30 and above	11.8	29.4	58.8	346
Educational qualification				
No formal education	30.0	20.0	40.0	123
Upto 5 years	33.3	44.4	22.2	206
6-10 years	40.7	44.4	14.8	547
More than 10 years	36.7	50.0	13.3	595
Marital status				
Ever married	20.0	43.3	36.7	612
Never married	50.0	45.5	4.5	859
Migratory status				
Migrants	36.8	42.1	21.1	377
Non-migrants	37.0	46.3	16.7	1,094

Table 4.3: Contd...

Background Characteristics	<20	20-24	25+	No. of IDUs (un weighted)
Sex				
Male	36.2	44.9	18.8	1,393
Female	75.0	25.0	0.0	78
Epidemic region				
HD	36.4	38.6	25.0	1,096
KV	39.3	53.6	7.1	354
RH	----	----	----	21
Total	**37.8**	**44**	**17.6**	**1,471**

***Figure 4.2:* Percentage distribution of IDUs by the age at which they used injecting drug for the first time**



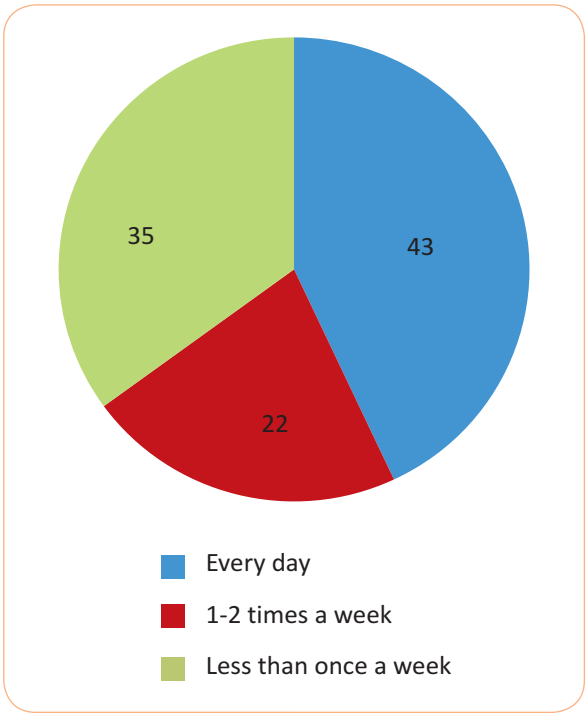
A number of research studies on IDUs have highlighted a very significant correlation between drug and alcohol use. During this study, an effort was made to explore the association between injecting drug use and pattern of alcohol consumption by the IDUs, and the results are presented in Table 4.4 and Figure 4.3. Findings indicate that an overwhelming 89% of the IDU respondents reportedly consume alcohol. The proportion of IDUs reporting alcohol consumption was higher among those who are aged between 20 and 29 years, have some degree of educational attainment and are living in the Highway Districts region, as compared to their counterparts. Figure 4.3 indicates that 43% of the IDUs consume alcohol almost every day. An analysis of the frequency of alcohol consumption indicated that the proportion of IDUs who report daily consumption of alcohol is higher than the proportion of IDUs who consume alcohol once to twice a week, or lesser. Daily alcohol consumption was highest in the IDUs who are currently in the age group of 30 years and above, and in those who have no formal education.

Table4.4: Percentage distribution of IDUs who have ever used alcohol and their frequency of alcohol use by selected background characteristics

Background characteristics	% of IDUs reporting alcohol use	No. of IDUs (un weighted)	Frequency of alcohol use			
			Every day	1-2 times a week	Less than once a week	No. of IDUs (un weighted)
Age						
Below age 20	81.8	249	33.3	22.2	44.4	200
20-29 years	91.1	876	39.0	24.4	36.6	801
30 and above	88.2	346	60.0	13.3	26.7	315
Educational qualification						
No formal education	83.3	123	60.0	20.0	20.0	103
Upto 5 years	90.0	206	50.0	12.5	37.5	187
6-10 years	88.9	547	44.0	24.0	32.0	492
More than 10 years	90.0	595	40.7	22.2	37.0	534
Marital status						
Ever married	90.0	612	51.9	18.5	29.6	562
Never married	86.4	859	36.8	23.7	39.5	754
Migratory status						
Migrants	89.9	377	43.8	18.8	37.5	340
Non-migrants	89.1	1,094	42.9	22.4	34.7	976
Sex						
Male	84.4	1,393	44.3	21.3	34.4	1,246
Female	100.0	78	50.0	25.0	25.0	70
Epidemic region						
HD	90.9	1,096	35.9	20.5	43.6	990
KV	86.2	354	56.0	24.0	20.0	305
RH	**	21	**	**	**	21
Total	**89.0**	**1,471**	**43.1**	**21.5**	**35.4**	**1,316**

** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

***Figure 4.3:* Percentage distribution of IDUs who have ever used alcohol by their frequency of alcohol use**



Needle Sharing Behaviour

Needle sharing is one of the common practices among IDUs and is an important risk factor for HIV transmission. Information on this behaviour may provide crucial inputs in planning and designing programmes and interventions to minimize the risk of HIV due to sharing of needles among IDUs. Findings of the study pertaining to needle sharing behaviour among IDUs in Nepal are presented below.

Table 4.5 and Figures 4.4 & 4.4(a) indicate that one in almost every seven or almost 14% of the IDUs in Nepal share needles with friends or others. An analysis of the pattern of needle sharing by background characteristics of IDUs clearly indicates a negative correlation between educational attainment and needle sharing. Figure 4.4 shows that approximately 20% of the IDUs who had no formal education reported needle sharing as against 10% of those IDUs who had received 10 years of education. It is further evident that prevalence of needle sharing is much higher among the IDUs of the Highway Districts region as compared to those living in the Kathmandu Valley region.

Needle sharing pattern of IDUs in the last 30 days prior to the survey indicated that amongst the IDUs who reported sharing needles while injecting drugs, 10% shared needles most of the times, 40% shared needles occasionally, whereas approximately 50% of the IDUs reportedly never shared needles. Further analysis indicates that within the sub-population of IDUs who reported sharing needles most of the times, the proportion of such IDUs was highest among those who are currently in the age group of under 20 years and IDUs based in the Highway Districts region.

***Figure 4.4:* Percentage distribution of IDUs reportedly sharing needles**

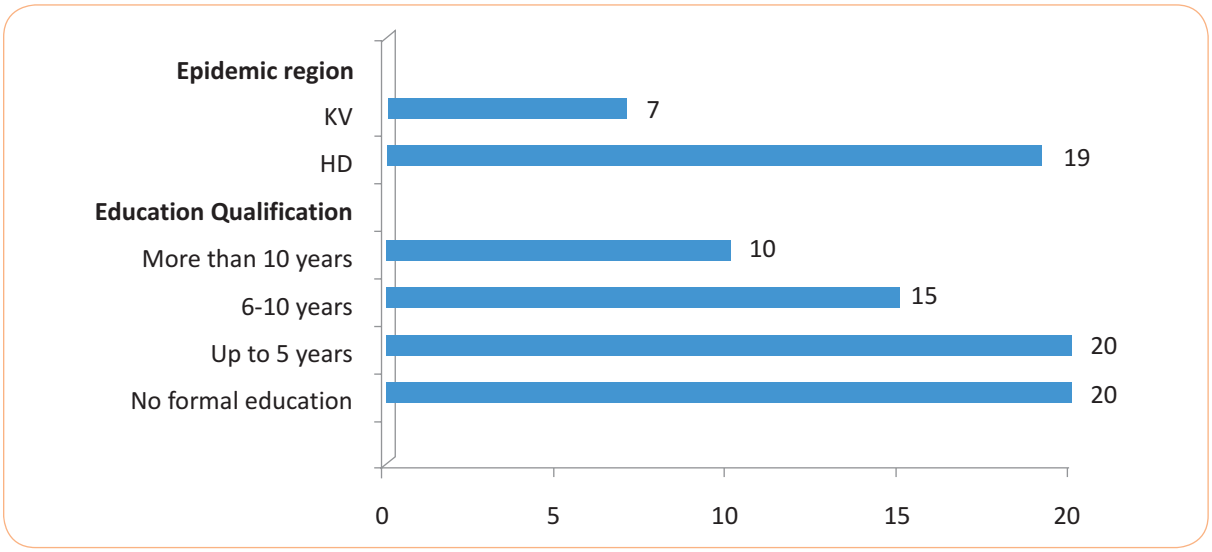
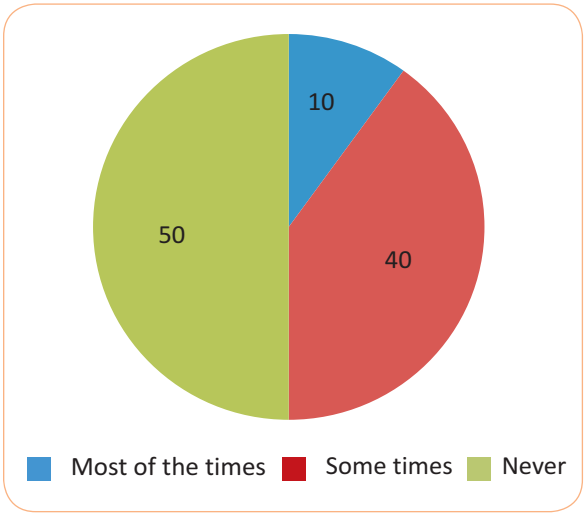


Table 4.5: Percent of IDUs reporting needle sharing and their frequency of needle sharing in the last 30 days prior to the survey by selected background characteristics

Background characteristics	% of IDUs reporting needle sharing	No. of IDUs (un weighted)	Frequency of needle sharing during the last 30 days			
			Most of the times	Some times	Never	No. of IDUs (un weighted)
Age						
Below age 20	16.7	249	**	50.0	50.0	50
20-29 years	13.3	876	**	50.0	50.0	132
30 and above	12.5	346	**	50.0	50.0	48
Educational qualification						
No formal education	20.0	123	**	50.0	50.0	28
Up to 5 years	20.0	206	**	50.0	50.0	42
6-10 years	14.8	547	**	66.7	33.3	89
More than 10 years	9.7	595	**	33.3	66.7	71
Marital status						
Ever married	16.7	612	**	50.0	50.0	104
Never married	13.6	859	**	33.3	50.0	126
Migratory status						
Migrants	16.7	377	**	33.3	66.7	73
Non-migrants	12.7	1,094	**	42.9	42.9	157
Sex						
Male	13.0	1,393	**	33.3	55.6	206
Female	25.0	78	**	100.0	0.0	24
Epidemic region						
HD	18.6	1,096	**	37.5	50.0	211
KV	6.9	354	**	50.0	50.0	18
RH	0.0	21	**	**	**	03
Total	**13.9**	**1,471**	**10.0**	**40.0**	**50.0**	**230**

** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

***Figure 4.4a:* Percentage distribution of IDUs by the frequency of sharing needles**



4.3: Safer sexual practice

It is important to understand the sexual behaviour of IDUs due to the dual risks of HIV infections faced by them. A number of studies in developing countries including India have focused at the complex mechanism through which IDUs are engaged in deviant sexual behaviour. In many instances, IDUs have been reported to sell sex, while in others, young male IDUs have been reported to work as male escorts in order to generate money for purchasing drugs. The latter scenario has primarily arisen in situations where young male IDUs may be college dropouts, although they may not have reached extreme addiction levels. In this context, the following section presents information about the sexual behaviour of IDUs that was collected during the study across the selected districts in Nepal. The information pertaining to sexual behaviour has largely been collected from male IDUs and hence the analysis and interpretations discussed in this section are restricted to the male IDUs, due to fewer reported cases of female IDUs as well as the sensitivities involved therein.

The sexual behaviour of male IDUs has been analyzed through information on the following sexual practices sexual intercourse in the last 30 days prior to the survey, number and types of sexual partners, and condom use with different types of sexual partners and is presented in Tables 4.6, 4.7 and Figure 4.5. As indicated in Table 4.6, nearly half of the IDUs are sexually active, with 47% reporting to have had sex at least once in the last 30 days prior to the survey. Within this group, 69% of the respondents had sex with only one partner during the last 30 days. The pattern of the proportion of IDUs having sex and the number of sexual partners during the last 30 days prior to the survey is not uniform, and varies by their background characteristics. IDUs who are relatively older and are aged 30 years or more, currently married, and do not have any formal schooling are more likely to have had sex during the 30 days prior to the survey. However, IDUs who are younger and aged less than 20 years, unmarried, migrants, and living in highway districts are relatively more likely than their respective counterparts to report sexual relationshops with multiple partners in the last 30 days prior to the survey. Thus, these behavioural characteristics may be treated as screening criteria to classify and prioritize IDUs who are more vulnerable to HIV due to their dual risk of contracting the virus.

Tables 4.7 a, b & c and Figure 4.5 present major issues emerging from an inquiry into partner type and condom use behaviour among IDUs. With reference to Table 4.7a, 82% of IDUs had sexual relations with their regular partner or spouse during the last 30 days prior to the survey, and only 43.5% of them reported condom use. The prevalence of condom use was more pronounced in case of the last sexual encounter of unmarried IDUs. In total, 50% of the IDUs who were never married had reportedly had sex with their regular partners during the last 30 days prior to the survey, of which 67% reportedly used condom in their last sexual encounter with their regular partner. Further, Table 4.7b shows that 21.4% of IDUs had sex with a commercial partner during the last 30 days prior to the survey and 83% of those IDUs reported to have used condom during sex. The prevalence of condom use with commercial sexual partner in the last 30 days prior to the survey is considerably higher among those IDUs who are currently aged 30 years or above, those who are never married and those living in the Kathmandu Valley region. Table 4.7c shows that the sexual behaviour of IDUs with non-commercial sexual partners poses similar levels of the dual risk of HIV. In this case, 28.6% of IDUs reportedly had sex with a non-commercial partner and 62.5% among them reported condom use in their last sexual encounter with non-commercial partners during the last 30 days prior to the survey.

Table 4.6 : Percentage distribution of male IDUs reporting sexual relationships with multiple partners during the last 30 days by selected background characteristics

Background characteristics	% reporting Sex in last 30 days	No. of IDUs (un weighted)	Number of sexual partners during the last 30 days prior to the survey		
			Single partner	Multiple partner	No. of IDUs (un weighted)
Age					
Below age 20	28.6	137	50.0	50.0	42
20-29 years	43.2	697	35.7	33.3	289
30 and above	62.5	330	75.0	20.0	212
Educational qualification					
No formal education	66.7	99	100.0	0.0	60
Upto 5 years	50.0	182	75.0	25.0	91
6-10 years	43.5	443	70.0	30.0	196
More than 10 years	43.5	440	66.7	33.3	196
Marital status					
Ever married	75.9	565	75.0	25.0	414
Never married	21.9	599	50.0	50.0	129
Migratory status					
Migrants	50.0	305	57.1	42.9	148
Non-migrants	45.5	809	73.7	26.3	395
Epidemic region					
HD	48.6	886	64.7	35.3	427
KV	43.5	258	77.8	22.2	105
RH	53.3 **	20	**	**	11
Total	**46.7**	**1,164**	**69.2**	**30.8**	**543**

** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

Table 4.7a: Percentage distribution of IDUs by their sexual relationships with regular partners and condom use in the last sexual encounter within the last 30 days prior to the survey by selected background characteristics

Background characteristics	% having sex with regular partner in the last 30 days	No. of IDUs (unweighted)	% reporting condom use in the last sexual encounter	No. of IDUs (unweighted)
Age				
Below age 20	50.0	50	50.0	33
20-29 years	76.5	333	46.2	263
30 and above	90.0	213	44.4	192
Marital status				
Ever married	90.9	453	40.0	415
Never married	50.0	143	66.7	73
Epidemic region				
HD	83.3	460	40.0	381
KV	80.0	125	50.0	99
RH	0.0	11	40.0*	08
Total	**82.1**	**596**	**43.5**	**488**

** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

Table4. 7b: Percentage distribution of IDUs by their sexual relationships with commercial partners and condom use in the last sexual encounter within 30 days prior to the survey by selected background characteristics

Background characteristics	% having sex with commercial partner in the last 30 days	No. of IDUs (unweighted)	% reporting condom use in the last sexual encounter	No. of IDUs (unweighted)
Age				
Below age 20	33.3	50	0.0	14
20-29 years	25.0	333	80.0	88
30 and above	18.2	213	100.0	38
Marital status				
Ever married	18.2	453	75.0	84
Never married	33.3	143	100.0	56
Epidemic region				
HD	22.2	460	75.0	110
KV	20.0	125	100.0	26
RH	50.0*	11	100.0*	04
Total	**21.4**	**596**	**83.3**	**140**

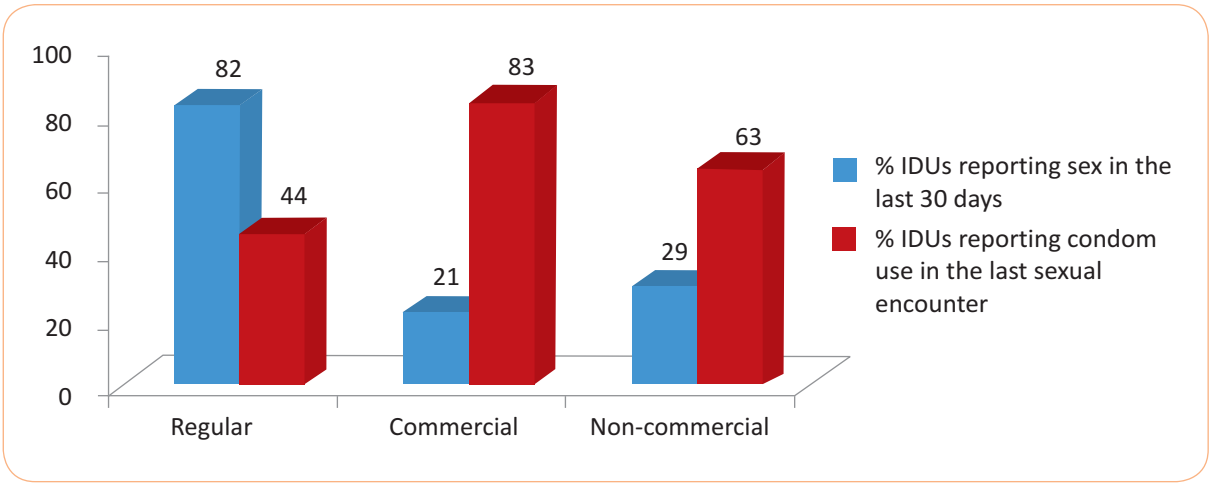
** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

Table 4.7c: Percentage distribution of IDUs by their sexual relationships with non-commercial partners and condom usage in the last sexual encounter within 30 days prior to the survey by selected background characteristics

Background characteristics	% having sex with non commercial partner in the last 30 days	No. of IDUs (unweighted)	% reporting condom use in the last sexual encounter	No. of IDUs (unweighted)
Age				
Below age 20	50.0	50	100.0	26
20-29 years	35.3	333	66.7	124
30 and above	10.0	213	100.0	31
Marital status				
Ever married	18.2	453	60.0	96
Never married	57.1	143	75.0	85
Epidemic region				
HD	39.3	460	66.7	150
KV	20.0	125	50.0	26
RH	0.0	11	0.0*	04
Total	**28.6**	**596**	**62.5**	**181**

** Based on fewer than 10 observations*

***Figure 4.5:* Percentage distribution of IDUs having sexual relationships with different types of partners and condom use in their last sexual encounter within 30 days prior to the survey**



4.4: STI prevalence and treatment seeking behaviour

STIs increase the susceptibility for HIV. This is owing to two factors. Firstly, STIs, such as syphilis, herpes, and chancroid cause a break in the genital tract lining or skin. These breaks create a passage of entry for HIV. Secondly, inflammation resulting from genital ulcers or non-ulcerative STIs increases the concentration of cells in genital secretions that can serve as targets for HIV. STI prevention, testing, and treatment can thus play a vital role in comprehensive programs to prevent sexual transmission of HIV. Furthermore, STI trends can offer important insights into where the HIV epidemic may grow. Owing to this, acquiring further information on IDUs with STIs and their behaviour is warranted.

Table 4.8 highlights that 13.6% of the IDUs in Nepal reportedly contracted a disease through sexual contact during the last 12 months prior to the survey. Among them, 54% reported to suffer from abnormal genital discharge and 75% experienced a genital sore or an ulcer. However, the pattern of prevalence of any STI during the last 12 months prior to the survey is not uniform across various background characteristics.

The results show that a relatively higher proportion of IDUs, that is, 18% of the IDUs aged 20 29 years, 14% of IDUs who were never married, 13% of those who had sexual relationships with multiple partners during the last 30 days and 20% of the IDUs living in Kathmandu Valley reportedly suffered from STIs. The two most frequently reported symptoms of STIs among IDUs in Nepal were abnormal genital discharge with unpleasant odour and genital sore or ulcer.

Table4. 8: Percentage distribution of IDUs reportedly suffering from any STIs and those exhibiting the two most common symptoms of STIs during the last 12 months prior to the survey by selected background characteristics

Background characteristics	Any STI	No. of IDUs (un weighted)	Abnormal discharge with bad smell	Genital sore or ulcer	No. of IDUs (un weighted)
Age					
Below age 20	0.0	50	0.0	0.0	7
20-29 years	17.6	333	50.0	100.0	68
30 and above	10.0	213	100.0	100.0	35
Marital status					
Ever married	13.6	453	50.0	66.7	73
Never married	14.3	143	0.0	0.0	37
# Partners in the last 30 days					
1	11.1	361	50.0	100.0	32
2+	12.5	182	100.0	100.0	25
Epidemic region					
HD	11.1	460	50.0	50.0	78
KV	20.0	125	0.0	100.0	31
RH	0.0	11	**	**	1
Total	**13.6**	**596**	**53.7**	**74.7**	**110**

** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

***Figure 4.6:** Percentage distribution of IDUs reportedly suffering from any STI and those exhibiting the two most common symptoms of STI during the last 12 months prior to the survey*

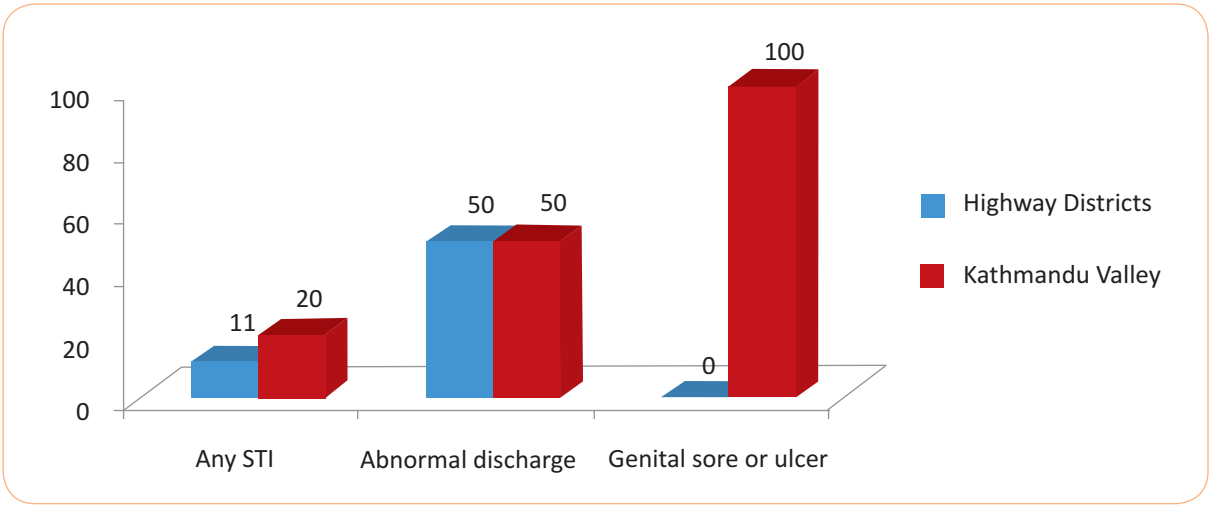


Table4. 9 : Percentage distribution of IDUs who sought treatment from among the IDUs who were reportedly suffering from STIs during the 12 months prior to the survey and the most commonly used health facilities for STI treatment by selected background characteristics

Background characteristics	% sought treatment	No. of IDUs reportedly Suffering from STIs (unweighted)	Sources of getting STI treatment				
			GH/HP	STI clinic	VCT	Private hospitals	No. of sought (un weighted)
Age							
Below age 20	0.0	7	0.0	0.0	0.0	0.0	3
20-29 years	66.7	68	50.0	50.0	0.0	0.0	50
30 and above	100.0	35	0.0	0.0	0.0	0.0	25
Marital status							
Ever married	66.7	73	33.3	33.3	0.0	33.3	56
Never married	100.0	37	0.0	0.0	0.0	0.0	22
Epidemic region							
HD	50.0	78	0.0	0.0	0.0	100.0	54
KV	100.0	31	0.0	0.0	0.0	0.0	23
RH	0.0	1	**	**	**	**	1
Total	**72.2**	**110**	**32.9**	**25.8**	**15.7**	**25**	**78**

** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

***Figure 4.7:** Percent distribution of IDUs reportly suffering from any STI during the last 12 months prior to the survey by sources of obtaining treatment*

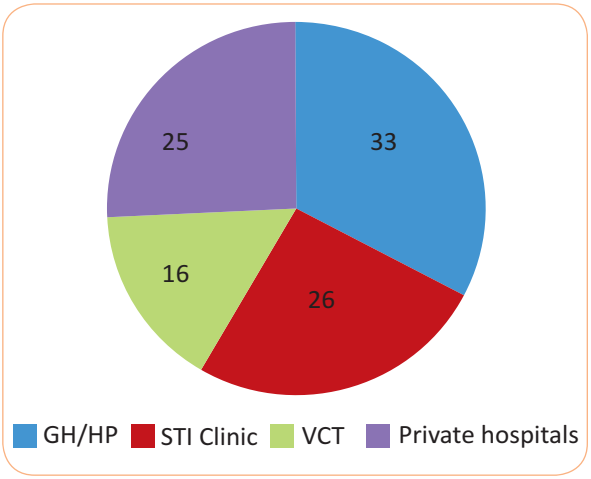


Table 4.9 highlights that 72% of the IDUs who had contracted STIs sought medical advice for the infection(s). This proportion was lower among the sub-category of IDUs who belonged to highway districts, with only 50% seeking medical advice. The most regularly sought STI services for treatment were government hospitals as reported by 33% of the IDUs having STIs, followed by STI clinic and private hospitals as reported by 25.8% and 25% of the IDUs with STIs respectively, during the last 12 months prior to the survey.

4.5 HIV testing

HIV testing is critical for control and roll back of the epidemic. It is an important indicator of both the awareness level of populations and reach of service delivery to the beneficiaries. A high level of HIV testing can be critical in the surveillance system of the area. The survey found that 75% of the IDUs in Nepal to have been tested for HIV atleast once in their lives. The proportion of IDUs who have tested for HIV is similar across most background characteristics except for IDUs who are aged below 20 years, wherein only 54.5 % were tested for their HIV, who are never married, wherein 68% had ever been tested for HIV. Moreover, fewer IDUs in the Highway Districts tested for HIV than IDUs from other regions.

Figure 4.9 highlights that 75.3% of the IDUs were ever tested for HIV, 76.4% were tested less than 12 months prior to the survey, whereas 9% were tested two or more years prior to the survey and almost all respondents who underwent HIV testing reportedly received their results. The most preferred site for testing was the VCT Centre, as reported by 60% of the respondents.

Table 4.10: Percentage distribution of IDUs ever tested for HIV and time elapsed since the last testing by selected background characteristics

Background characteristics	Tested for HIV	No. of IDUs (unweighted)	Time since the last time testing for HIV			
			<12 months	12-24 months	Above 24 months	No. of IDUs (unweighted)
Age						
Below age 20	54.5	249	100.0	0.0	0.0	129
20-29 years	75.6	876	79.4	14.7	5.9	648
30 and above	88.2	346	66.7	13.3	20.0	305
Marital status						
Ever married	83.3	612	75.0	12.5	12.5	513
Never married	68.2	859	80.0	13.3	6.7	569
Epidemic region						
HD	72.1	1,096	78.1	12.5	9.4	784
KV	79.3	354	73.9	17.4	8.7	280
RH	0.0	21	**	**	**	18
Total	**75.3**	**1,471**	**76.4**	**14.5**	**9.1**	**1,082**

** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

Figure 4.8: Percentage distribution of IDUs who have ever been tested for their HIV Status

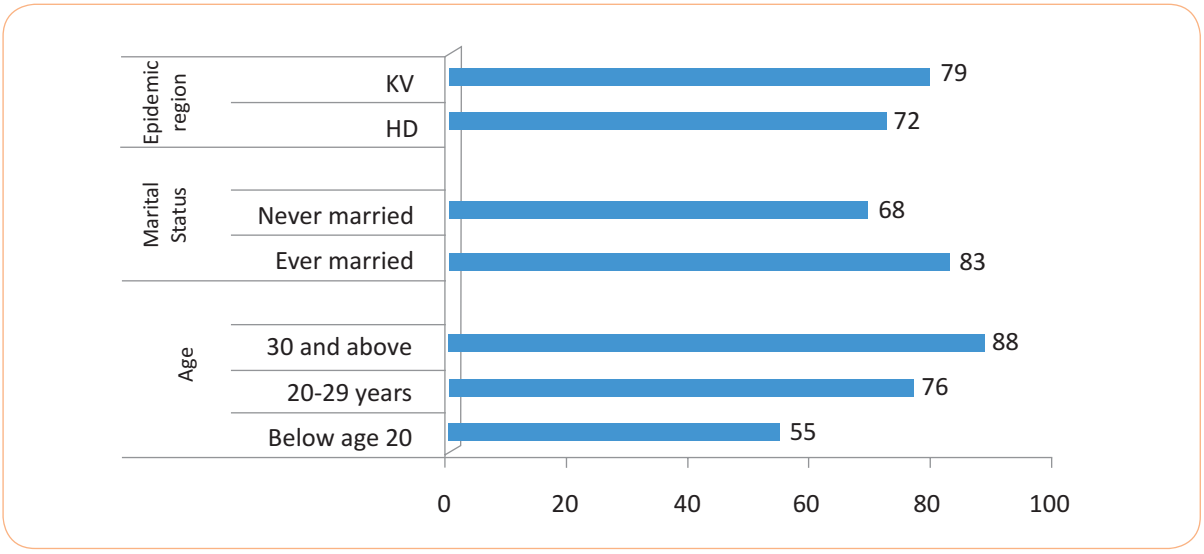


Figure 4.9: Percent distribution of IDUs who have ever been tested for their HIV status by time elapsed since they were last tested

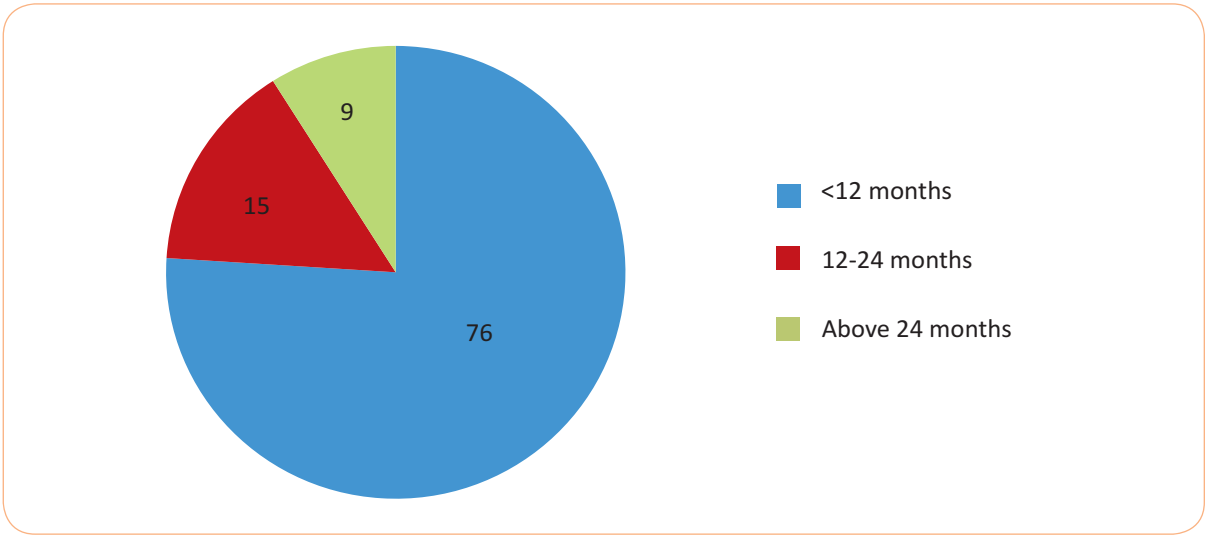


Table4.11: Percentage distribution of IDUs ever tested for HIV status at different health facilities by selected background characteristics

Background characteristics	Sites of HIV testing				
	GH/HP	STI Clinic	VCT	Private hospitals	No. MTC who were tested (unweighted)
Age					
Below age 20	16.7	0.0	66.7	16.7	129
20-29 years	11.8	2.9	61.8	23.5	648
30 and above	21.4	0.0	64.3	14.3	305
Marital status					
Ever married	16.0	4.0	64.0	16.0	513
Never married	38.3	0.0	62.1	24.1	569
Epidemic region					
HD	16.1	3.2	61.3	19.4	784
KV	12.5	4.2	58.3	25.0	280
RH	**	**	**	**	18
Total	**14.5**	**3.6**	**60.0**	**21.8**	**1,082**

** Based on fewer than 10 observations; ** Too small cell frequencies to give any information*

CHAPTER

5

CONCLUSIONS AND RECOMMENDATIONS

- The report clearly highlights many districts where despite substantial presence of IDUs, no targeted interventions are in place. The data must be used for prioritizing resource allocation and planning for extension of prevention services in these districts in order to achieve universal access targets. These findings should form an integral part of the geographic prioritization scheme and the target settings in the upcoming National Strategic Plan, and the coverage and achievement must be decentralized and percolated down to the district level for effective monitoring.
- Many districts wherein the estimated size of the IDU group may be lower than the threshold required to initiate targeted interventions have emerged in this study. However, in order to prevent a sudden surge of the epidemic in these districts, the national programme should undertake innovative strategies to ensure the coverage of this population group and provision for a continuum of services to them. Moreover, the national programme should monitor the trend regularly so that the dynamic pattern of transmission in these districts can be tracked and corrective actions can be taken in a timely manner. One plausible option could be to commence composite targeted interventions for multiple MARP groups by initially providing a minimum package of services to them.
- The findings of mapping study can be extremely useful for increasing the effectiveness and efficiency of targeted interventions by using the detailed data on size, spread, behavioural patterns, etc. Detailed district reports are available at HSCB wherein district wise detailed maps, which reflect the locations and hotspots of MARP groups and critical information such as busiest day, busiest hour, availability of condom outlets, availability of VCT/STI services, seasonal variation, etc that has been analysed at district level (for mapped districts) is available. This information should be utilised for planning programmes, covering hitherto left out hotspots,

working out monthly district-wise targets, identifying the program component that requires improvement, relocating VCT/STI service delivery points, opening/provisioning of additional condom outlets, deciding the most efficient work schedule for peer educators and outreach workers, etc. If put to proper use, these data sets can considerably enhance the effectiveness of targeted interventions and expand their coverage.

- As is clear from the analysis, a substantial number of IDUs have been initiated into drug use, including injecting drug use, at an early age and many IDUs were initiated when they were still adolescents. This highlights the need to ensure expansion of services to this young population before it is exposed to high-risk behaviour. Therefore, the programme monitoring should separately focus on and conduct follow up studies on the new IDUs covered in this study in order to allow the programme to identify them at younger ages. This also calls for the need to ensure age disaggregated monitoring of prevention, care and treatment programmes.
- Since the dynamics of epidemic transmission keep changing, this kind of mapping exercise should be repeated periodically, preferably at three to four year intervals in order to identify new hotspots and emerging districts with IDU population. For districts that have not been mapped in this exercise, it is recommended that studies like light mapping be undertaken to validate the assumptions made for deciding upon the scheme for extrapolation.
- As the analysis of risk and vulnerability clearly indicates the multi-sectorality of HIV, rather than it being only a health sector problem, the response also needs to be multi-sectoral in nature, addressing all aspects of risk and vulnerability including a coordinated response between various sectors and line ministries, such as Ministry of Home, Ministry of Women and Child Welfare, Ministry of Local Development, and Ministry of Health, in order to create an enabling environment wherein these sub-population groups can emerge and access services.
- As demonstrated by this study, the true picture of the presence of IDUs will emerge only with the active participation of communities; therefore, it is recommended that the capacity of the IDU community networks be developed so that they can undertake such exercises independently in the future.

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APPENDIX A

Application of correction factors in estimating IDU size in different districts of Nepal

The algorithm for application of correction factors to estimate the size of Injecting Drug Users (IDUs) is highlighted in this annexure. Three data sources—developed specifically for the mapping and size estimation exercise in Nepal—were utilized. These were data under tools named Tool 2, Tool 3, and the Participatory Rapid Assessment (PRA).

Tool 2 included Key Informants' inputs on estimated 'minimum,' 'maximum' and the 'agreed' IDU population size according to their experience and interaction with the IDU populations at hotpots. Tool 3 included field research teams' records on the estimated number of IDUs based on the number of IDU members observed and interacted with at a particular hotspot visited on three consecutive days at different points of time. The third source for providing IDU estimates at a hotspot where over five IDUs operate was the PRA. Data collected from the hotspots of five districts was reviewed by the researchers and Working Group for assessing the stability in the estimated number of IDUs. The Working Group determined that the highest number of IDUs estimated by key informants, the field research groups, and through the PRAs would form the base estimate for applying correction factors at four levels for determining the size of the IDUs. These correction factors were applied under the following assumptions:

1. IDUs visit different hotspots according to a particular time during a three-day period. Hence, the number of IDUs recorded by the field research team over three consecutive days—at different points of time—constitutes the estimated number of IDUs operating at a hotspot within one full day.
2. Proportion of IDUs visiting multiple hotspots in different parts of a district is uniform.
3. Proportion of IDUs not visiting any hotspot—whether for injecting drugs or for other activities—is uniform across a district.

Based on the assumptions, the size estimates of IDU were finalized by applying the following four correction factors. These correction factors were applied to adjust for frequency, duplication, turnover and IDUs not visiting any hotspot. The method for calculating these correction factors is detailed below.

I. Adjusting for the frequency of IDUs visiting a hotspot

The level of IDU activity at a hotspot varies on different days of the week, with some IDUs visiting a hotspot more frequently than others. If IDUs visit a hotspot less frequently than the period of recall used in the PRA or the period of observation, (as has been the case in Nepal) there is a probability that those IDUs were not at the hotspot during the period of data collection. In order to prevent such a potential undercounting of IDUs, the frequency is adjusted through the application of a formula.

Two different data sets are required for adjusting for frequency. The **first data set** is the total number of IDUs observed and interacted with, on three consecutive days at three different points of time using Tool 3. The **second data set** is derived from the behavioural survey of IDUs from different hotspots using Tool 4.

Rules: The following three rules were adhered to for making frequency adjustments:

1. Frequency of visits to different hotspots was derived at the national level after merging the SPSS data file for all the mapped districts in order to minimize the fluctuations in the distribution. This was applied to adjust the frequency of visits of IDUs to the other districts where mapping was not conducted.
2. Frequency of visits was restricted to the following three categories: daily visits, visits 2 to 3 times a week and visits once a week. IDUs reporting frequency of visits less than once a week were not considered for this adjustment. They were included in a fourth category of IDUs, that is, those who do not visit any hotspot.
3. Since the behavioural survey was conducted among IDUs who were available and willing to participate in the survey during the three-day visit of the field research team to the hotspot, there is a probability that some IDUs visiting the hotspot either once a week or 2 to 3 days in a week were recorded in the daily figure by the field research team. Therefore, the observed frequencies for 2-3 days in a week and once a week would need to be modified to ensure true representation of those who were recorded as daily.

The following are certain assumptions made whilst adjusting for frequency:

1. IDUs visit a hotspot infrequently or randomly over a period of time.
2. An overall pattern of seasonality—or a strong pattern of coming to a hotspot over a time period longer than a week is not addressed by this adjustment. Neither does it consider other factors.

The formula for adjusting for frequency is in the box below:

$$S_1 = (C_i * P_f * f_p) + (C_i * P_f * f_p) + (C_i * P_f * f_p)$$

where, S_1 = Estimated total of IDUs in X district (i) after adjusting for the frequency,

C_i = Estimated number of current IDUs functioning in a district based on observed plus interacted,

P_f = proportion of IDUs visiting hotspots in a district with frequency f_p

II. Adjusting for duplication of IDUs visiting multiple hotspots

There is a probability for double counting of IDUs visiting multiple sites. If some IDUs visit more than one hotspot in a day or in a week, then they are likely to have been accounted for twice by the key informants estimating the size of the different hotspots based on observations or through interaction.

In order to prevent a potential duplication of IDUs visiting multiple hotspots, a formula is applied. Two data inputs are required for the computational procedure for determining the weighted average. First is the proportion of IDUs visiting other hotspots and second is the size of hotspots.

The following steps indicate the process for calculating the weighted proportion of IDUs visiting multiple hotspots:

- Create an excel sheet.
- Obtain the compiled district level information on the number of IDUs visiting other hotspots (that was captured during field visit using Tool 3). Enter these details in the excel sheet under column name '***q***.'
- Create a column named '***p***' where the number of observed plus interacted IDUs, according to each hotspot, is entered.
- Calculate the sum of the product of values under column ***p with q*** $(\sum p*q)$. Calculate the sum up column, ***p*** $(\sum p)$. The ratio of these two values will give the weighted proportion of IDUs operating from multiple hotspots $(\sum pq/\sum p = C_i)$

Once the weighted proportion of the IDU populations visiting multiple hotspots is obtained, an adjustment for duplication can be made using the following formula:

$$S_2 = S_1 - ½ (D_i)$$

where, S_2 = Estimated number after adjusting for duplication

S_1 = Estimated size after adjusting for frequency

D_i= Estimated number of current IDUs in district named 'i' who are estimated to operate from multiple hotspots.

The weighted proportion (**C_i**) needs to be multiplied with **S_1**—the estimated number of IDUs in a district after adjustment for frequency—to obtain the exact number of IDUs operating from multiple hotspots. The value thereby obtained will need to be divided by 2 for making the necessary adjustment.

The following rules were adhered to:

1. The adjustment is made at the national level under the assumption that no strong pattern of variation in terms of the proportion of IDUs visting other hotspots across different districts is observed.
2. The value of weighted proportion (**C_i**) is computed from the national level estimate and is applied on the district level **S_1** to obtain the number of duplicates and subsequently **S_2**.

III. Adjusting for turnover of IDUs (i.e. people entering and exiting over the course of the year)

There is an element of turnover in the IDU population that needs to be considered during size estimation. There is a probability that at any given point of time, the IDU population includes those who have recently engaged in injecting drug use related activities or behaviour, or have been doing so for a minimum specific duration, and those who no longer engage in IDU behaviour. This must be considered during size estimates.

Turnover is distinct from frequency. The duration of exhibiting IDU behaviour is independent from the frequency of practicing the activity In this regard, a hypothetical example that can explain this distinction more effectively is the case of an IDU who, on an average, has been engaging in the act of injecting drugs for a period of ten 10 years. This is distinct from the number of times that this IDU actually injects drugs on a daily, weekly or monthly basis and therefore, independent of the total number of years that the IDU has been engaged in the act of drug abuse.

The following formula was applied to for adjusting for IDU turnover:

$$S_3 = S_2 + [T*S_2 /2D]$$

where, S_3=Adjusted total Size of IDU population over time T

S_2= Estimated number of current IDUs after first two adjustments

T=Period of interest for the estimate (for example one year)

A key input required for the computation is the average duration (**D**) that IDUs are included in this category owing to their associated behaviour. This was calculated using the data that was collected

through Tool 4 where two values under question 101 and question 201 were subtracted (q101-102). The reference period of the estimate (**T**) was considered as 1 year. $\mathbf{S_2}$ was derived after frequency and duplication adjustments were made.

The following rules were adhered to:

- The average duration that an IDU is included to this category is calculated at the national level.
- The time variable (years / months / days) used for average duration (**D**) and period of interest of the estimate (**T**) was kept consistent and uniform.

The following assumption was made whilst making adjustment in IDU turnover:

- In the formula above, the denominator used for the calculation was two times the average duration (**2D**). This was based on the assumption that all IDUs were at the halfway point of the total duration that they were likely to engage in IDU behaviour.

IV. Adjusting for "hidden" population

The IDU size estimation must consider the proportion of the population that remains hidden and/or did not visit the mapped hotspots during the time of the survey. Ideally, the adjustment should have been made on the basis of findings of a broader survey of IDUs that would highlight the percentage of IDUs who would prefer visiting public places or meeting partners in private places over hotspots. This would be indicative of their preferred meeting area.

However, such a survey was beyond the scope of this study and therefore, in order to estimate the number of IDUs excluded from the mapping exercise, the total number of IDUs in a district is inflated by the inverse of the proportion of the population assumed to visit the mapped sites. In reference with the IBBS estimates of Nepal, it is assumed that only 80% MARPs visit hotspots. The formula applied for adjusting hidden population is expressed below.

Formula for hidden population adjustment

$$S = S_3 / P$$

Where, S=Adjusted total size

S_3 = Adjusted total Size of IDU population over time T after adjusting for frequency, duplication and turnover

P = Estimated proportion of IDUs who do not visit to mappable sites

Once the size estimate of IDUs was finalized through the application of the four correction factors, the final estimates were presented as interval estimates with a coefficient of range calculated by the using the following formula:

$$\left(\frac{[\text{Maximum range} - \text{Minimum range}]}{[\text{Maximum range} + \text{Minimum range}]} \right) \times 100$$

The inputs for computation of interval estimates were based on the number of IDUs observed during the mapping exercise—irrespective of whether it was through observation or interaction. The maximum and minimum number of estimated IDU population obtained through three sources—Tool 2, Tool 3 and PRA—were added and subtracted from the final estimates —once the correction factors were applied—and halved to give the lower and upper limits of the final interval estimate.

APPENDIX

B

Methodology for obtaining national size estimates for IDUs through extrapolation

This annexure presents the methodology for calculating national size estimates of IDUs using extrapolation algorithms. Since out of a total of 75 districts in Nepal, the mapping exercise was conducted in 31 districts for IDU, the national estimates were calculated through the application of extrapolation algorithms wherein size values were assigned to the unmapped districts based on the subset of districts where mapping was conducted.

In the Kathmandu Valley region and the Terai districts, IDUs were mapped in all districts except in 7 districts. The hill districts were divided into 4 sub-zones for the mapping exercise: Far-West Hills, West and Mid-West Hills, Eastern Hills, and Remaining Hills. The sub-division to 4 zones was on the basis of geographic contiguity and expected similarity in epidemic patterns. In West and Mid-West Hills, Eastern Hills, and Remaining Hills, mapping was conducted in 13 districts each, whilst in the Far-West Hills, it was conducted in 7 districts.

For ensuring the quality of the extrapolation algorithms, the unmapped districts were first matched as far as possible with mapped districts. Herein, each of the districts that were not included in the mapping exercise was assessed on the basis of the following six parameters to obtain the best match to any of the districts included in the mapping and size estimation exercise:

a. Percentage of urban population
b. Population density
c. Total adult population in the district as per the most recent estimates
d. Total length of highways across the district
e. Reported number of STI cases in the last 12 months
f. Special characteristics, such as caste based sex work, routes of drug trafficking, trafficking of women in sex trade, and trafficking and trekking routes

Accordingly, the unmapped districts were matched with the mapped districts, region-wise, which were designated as "high" and "low" depending on the expected number of IDUs in each district.

The designated high and low districts for Far-West Hills, West and Mid-West Hills, Eastern Hills, and Remaining Hills is reflected under Table A.

Final extrapolation rules

In summary, the following rules were developed and adhered to for extrapolating the size of IDUs in unmapped districts:

Table A: Designated high and low districts for mapping in the hills

IDUs	Designated high	Designated low	Prediction correct
Eastern Hills	Ilam	Sankhuwasabha	Yes
Far West Hills	Baitadi	Achham	No
Remaining Hills	Kavre	Mugu	Partially
West and Mid-west Hills	Surkhet	Myagdi	Yes

For IDUs, the estimated number in Far-West Hills, West and Mid-West Hills, Eastern Hills, and Remaining Hills were negligible. Rather than assigning a value of zero an algorithm was developed—using a quartile system—for assigning values to these mapped districts.

For determining quartile values, the districts were divided into quartiles relative to their population sizes. Each quartile was assigned an index value based on the estimated size of the MARPS. The total estimated higher range of MTCs, and IDUs was 82,330, and 33,742 respectively.

As indicated in Table B, the districts where IDU population was negligible were divided into quartiles based on the adult male population size for MTCs and IDUs. For MTCs, the value of the index was set at 40 for the highest quartile, 30 for the second quartile, 20 for the third quartile and 10 for the fourth quartile. The values for IDUs were set relative to the MTCs' values. Since the estimated size of MTCs was the highest at 82,330, the index values for IDUs were set at 41% of the MTC values (33,742/82,330).

Table B Quartile values assigned to "zero" districts in the hills

Quartile	FSW	IDU	MTC
1	3	4	10
2	7	8	20
3	10	11	30
4	13	15	40

For Hill districts

- For all districts that were mapped and where the estimated number of IDUs was not negligible or 'zero', the mapped values were used after applying the 4 correction factors described in Annexure A.
- For all districts that were not mapped, a set of extrapolation rules was followed that involved applying the population proportions from the designated high and low districts to the expected high and low districts.
- For all districts that were mapped and where the estimated number of IDUs was not negligible or 'zero', the quartile index values were applied to those districts. Any expected high or low districts were assigned to them.

For Highway Districts

- For all districts that were mapped and where the estimated number of IDUs was not negligible or 'zero', the mapped values were used after applying the 4 correction factors described in Annexure A.
- 26 out of 33 districts in the region were mapped for IDUs. For the purpose of applying extrapolation algorithms for IDUs, the 26 highway districts were divided into the following five segments:
  - Far-Eastern Terai (3 districts)
  - Eastern Terai (13 districts)
  - Pokhara corridor (4 districts)
  - Western Terai (4 districts)
  - Far-Western Terai (2 districts

Extrapolated values were assigned to these districts based on the average population of male IDUs—that is, number of IDUs divided by the total male population aged between 15 and 49 years—in the mapped districts.

APPENDIX C

Research Tools

Tool 1

Mapping Study of Most at Risk Population in …….. District in Nepal

Group Discussion Guideline for Broad Mapping with Key Stakeholders

Introduction: Namaste! My name is…….. And my colleague Name is_____ we are here from The Nielsen Company Nepal Pvt. Ltd. to collect data for a research study being conducted under the leadership of HIV/AIDS and STI Control Board (HSCB), **Ministry of Health and Population, Government of Nepal**. As you are aware, we all in the society are not at equal risk of contracting STI/HIV infection but some of our friends, who are also like us, are at higher risk of contracting STI/HIV. That is why Government of Nepal plans to provide essential support and services to such people in order to improve the quality of their life. Since planning of any such program or services will require database relating to their number/location/time of operation etc, we are here to get your support in getting such information, especially the major locations so that our team member can personally visit those locations/sites and interact with some of them in order to assess their needs. Therefore in this interaction we will ask you some questions that will be about Most at Risk Population for HIV/AIDs (MARPS) like FSW, MTC, IDUs their presence in different location, their size, risk behavior and availability of HIV/AIDS services and IDUs access to them. We would greatly appreciate your help in responding to this mapping exercise.

Thanks for your cooperation.

A. General Information about stakeholders and HIV/AIDS programs and services in the district

I request all of you to have a brief introduction; I am starting from my side. (Proceed one by one)

S.N.	Name	Organization	No. of years working in the area of STI/HIV (MARPs)	Type of Association (in terms of nature of involvements in HIV/ AIDS programs/services)

1. What are different types of MARPs present in urban or rural areas of your districts?

   <FSW> <MTC> <IDU>

2. Do you think that there is substantial change in size of MARPs in the recent years in this district? If yes, what may be the possible reasons?

   <FSW> <MTC> <IDU>

3. How is the seasonal variation (including festivals) in MARP size in this district?

   <FSW> <MTC> <IDU>

4. What are the STI/HIV services for different type of MARPs in this district?

   <FSW> <MTC> <IDU>

5. How these services for different MARPs have changed over a period of time

   <FSW> <MTC> <IDU>

6. In your opinion, what are the major gaps in effective services to MARPs in this district?

   <FSW> <MTC> <IDU>

B. Listing of locations of MARP activities and services

As we all agree, effective services to MARPs can be render only after a comprehensive mapping of the areas of their operation. Therefore let us list down the major locations size where high risk activities are taking place in this district. Please tell us about the places in your district where MARP Groups can be found and practice the risky behaviour? (Also use a map to identify the locations) List all the locations probe for more some new locations.

MARP	Location	Urban/Rural	Estimated No. of MARP (of each sub groups)			Key Informant
			Max.	Min.	Agreed Upon	
IDUs	1					
	2					
	3					

Protocols:

1. Nielsen facilitator should interact with DACC coordinator and major NGO representatives one day in advance and prepare a detail list of locations in the district where HIV/AIDS programs are already in progress, which will be presented on the stakeholders meetings. Subsequently, all the stakeholders will be requested to suggest all other locations in the district where MARPs activities are going on. The participating NGO representative should be encouraged to use their routine programme data while responding to questions on size estimation.

2. Facilitator should explain the difference between location and sites and encourage the participants to list down the additional locations with a clear mention that the research team will visit each of these locations and execute broad mapping of sites in those locations adopting segmentation approach.

3. Please review, once the listing is completed, if some of the sites have been listed as locations and correct it.

Tool 2

Mapping study of IDU in.....districts in Nepal

Location level rapid assessment
(instrument for site listing and confirmation through key informants*)

Name of the Location: .....

S.N	Map No.	Site Number	Site Name	Land Mark	Estimated population on a normal day			Type of Hot Spot	Peak Activity Time	Services Available
					Max.	Min.	Agreed Upon			

*

1. After reaching to the location there should be the round of location and identify the major land marks within the approximate boundary of the location.
2. Look for minimum 4 - 6 key informants with heterogeneous background.
3. Draw a rough sketch of the landmarks behind the sheet and then request KI to mark major sites where high risk activities take place.
4. Probe for additional sites till it is conformed that no more site is left.
5. This information is not to be solicited by the KIs but the research team will use its judgments based on the inputs in numbers suggested by KIs to reach to a consensus about the number. If there is very large difference in the minimum and maximum estimated numbers, the research team should write a justification. This number should refer to the period of the research rather than
6. This is the hour time…….
7. Condom promotion, STI, VCT, IPC/BCC.

TOOL 3: Injecting Drug Users (IDUs)

Mapping study of Injecting Drug Users (IDUs) in .....district.....Location

Site/Hot Spot Information Sheet

1. Site Identifiers:

Site No. _____ Name of site: _____

2. Site type: _____ (IDUs:)

3. Address of site: _____

Visit History:

1st Visit: Date: ___/____/____ Time: ___ ___ : ____ ____ am/pm peak? Y/ N

Team members: ___ ____ ____ ____ # KI interviewed _____

IDUs observed: ____ ____ # IDUs interacted with: ____ ____

2nd Visit: Date: ___/____/____ Time: ___ ___ : ____ ____ am/pm peak? Y/ N

Team members: ___ ____ ____ ____ # KI interviewed _____

IDUs observed: ____ ____ # IDUs interacted with: ____ ____

3rd Visit: Date: ___/____/____ Time: ___ ___ : ____ ____ am/pm peak? Y/ N

Team members: ___ ____ ____ ____ # KI interviewed _____

IDUs observed: ____ ____ # IDUs interacted with: ____ ____

Site Level Information including size data*

Number of IDUS estimated to come to the site over the last one week

KI (MARP& Non -MARPs) Number	Busiest day at site (for IDUS)	Average duration in hours that IDUS are active in a week	Estimated size on a normal day	% of IDUS at the site who go to other sites	% of IDUS coming to this site from other site	How many IDUSs at this site are under 16 years	Number of clients visiting the site	Which is the most accessed health service delivery point

Number of IDUS estimated to come to the site over a last 12 months period

KI (MARP& Non -MARPs) Number	Busiest month at site (for IDUS)	Average duration in months that IDUS are active in a year	Estimated size on a normal day	% of IDUS at the site who go to other sites	% of IDUS coming to this site from other site	How many IDUSs at this site are under 16 years	Number of clients visiting the site

*The tables below has to be filled based on the inputs from HIGH RISK MSMs as well as other informants like pimps, shopkeepers, paan walas, rikshaw driver etc. functioning the locality. Please remember to clarify the difference between the two tables. While the first table seeks to get the number in the preceding week's period the second table is asking for the information of over a period of last 12 months.

Identification of Additional Sites**:

Type of site	Name	Location information

If the additional sites reported here are the same recorded during the broad mapping it will act as revalidation while any new site identified here should be treated as an additional site in the locality and tools 3 and 4 will be canvassed. Please compare this list with the tool 2 at the end of every three day's work.

Observations:

Data from key informants is consistent with team observations: Y/N

Comments or issues about site visits:

Completed by: _____Date: ___ / ___ / ____

Reviewed by: _____Date: ___ / ___ / ____

Data entered: ____ / ____ / ____

TOOL 4

Mapping study of most-at-risk population in .....distric in Nepal

CONFIDENTIAL

Primary Key Informants Questionnaire (IDU)

Introduction: Namaste! My name is..... I am here from The Nielsen Company Nepal Pvt. Ltd. to collect data for a research study being conducted under the leadership of HIV/AIDS and STI Control Board (HSCB), **Ministry of Health and Population, Government of Nepal**. During this data collection, I will ask you some questions that will be about Most at Risk Population for HIV/AIDs (MARPS) like IDUs their presence in different location, their size, risk behaviour and availability of HIV/AIDS services and MARPs access to them.

Confidentiality and consent: "I'm going to ask you some questions. Your answers will be kept completely confidential. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. You do not have to answer any question that you do not want to answer, and you may end this interview at any time you want to. However, your honest answers to these questions will help us to collect genuine information. We would greatly appreciate your help in responding to our questions in this mapping exercise. The interview will take about 30 minutes.

Would you be willing to participate?
1. Yes 2. No

Date: 2067/___/___
Sex of the Respondents: Male: Female:
Signature of Investigator: _____Signature of Co-investigator _____

1.0 PERSONAL INFORMATION

Q. N.	Questions and Filters	Coding Categories	Skip to
101	How old were you at your last birthday?	Age in completed Years ☐☐ Don't know 98 Can't say 99	
102	What is your educational level?	Illiterate 1 Literate, no formal education 2 School up to 5 years 3 School up to 6-9 years 4 SLC Passed 5 PCL or +2 Passed 6 Bachelors Level Passed 7 Master Level Passed 8	
103	Where were you born?	Country_____ District_____ VDC/Municipality_____	
104	Where do you live now?	Country _____ District_____ VDC/Municipality_____	

Q. N.	Questions and Filters	Coding Categories		Skip to
105	How long you have been living here in **(NAME OF COMMUNITY/TOWN/ NEIGHBORHOOD/VILLAGE)**?	Number of Years Always (since birth) Record 00 if less than 1 year Don't know Can't say	 0 98 99	 →107
106	Before you moved here, where did you live?	Country _____ District_____ VDC/Municipality_____		
107	Have you ever been married?	Yes No Can't say	1 2 99	 →109
108	How old were you when you first married?	Age in years Don't know Can't say	 98 99	
109	Are you currently married or living with a man/ women with whom you have a sexual relationship?	Currently married, living with spouse Currently married, living with other sexual partner Currently married, not living with spouse or any other sexual partner Not married, living with sexual partner Not married, not living with sexual partner Can't say	1 2 3 4 5 99	
110	How many children less than 16 years are dependent on you?	Number Can't say	 99	
111	What is your main occupation?	Unemployed/not working /retired Student Non-agricultural /casual laborer Domestic servant Agricultural labor Skilled/semi-skilled laborer in manufacturing/ processing industry Cultivator Petty business/small shop owner Truck drivers/ cleaners Local transport workers (auto/ taxi drivers, hand cart pullers, rikshaw pullers etc) Self employed professional Service (pvt. / govt. Large business/medium to large shop owner Other (Specify)_____	1 2 3 4 5 6 7 8 9 10 11	
112	ON AN AVERAGE HOW MUCH NPR DO YOU EARN IN A MONTH? RECORD AS STATED	NPR ..... CAN'T SAY	 99	

2.0 ALCOHOL & DRUG USE

Q. N.	Questions and Filters	Coding Categories		Skip to
201	Have you ever had a drink containing alcohol?	Yes 1 No 2 Can't say 99		 → 203
202	During the **PAST ONE MONTH**, how often have you had drinks containing alcohol? **READ OUT & CIRCLE ONE RESPONSE CODE ONLY**	AT LEAST ONCE every day 1 About 5-6 days a week 2 About 3-4 days a week 3 About 1-2 days a week 4 1 to 3 times a month 5 Never 6 Don't know 98 Can't say 99		
203	Which of the following types of drugs have you ever used, and which ones have you used in the past one month? **READ OUT THE FIRST DRUG IN THE LIST. ASK 'IF THE DRUG HAD BEEN EVER USED' AND CIRCLE ONE APPROPRIATE RESPONSE CODE FOR 'EVER USED'. AGAIN FOR THE SAME DRUG ASK 'IF THE DRUG HAD BEEN USED IN THE PAST ONE MONTH' AND CIRCLE ONE APPROPRIATE RESPONSE CODE FOR 'USED IN PAST ONE MONTH', REPEAT THE SAME WAY FOR EACH DRUG ON THE LIST ONE BY ONE**	**EVER USED** YES NO DK CS	**USED IN PAST ONE MONTH** YES NO DK CS	
	a) Cannabis (ganja, charas, hashish, bhang, grass, tope, dikka, black)?	1 2 98 99	1 2 98 99	
	b) Heroin (brown sugar) by smoking or chasing?	1 2 98 99	1 2 98 99	
	c) Corex or Phensydyl cough syrup or codeine tablets ?	1 2 98 99	1 2 98 99	
	d) Nitravet / nitrosun/ nitrazepam tablets?	1 2 98 99	1 2 98 99	
	e) Proxyvon / Spasmoproxyvon (SP) capsules?	1 2 98 99	1 2 98 99	
	f) Diazepam tablets	1 2 98 99	1 2 98 99	
	g) Any other (Specify)	1 2 98 99	1 2 98 99	

3.0 INJECTING DRUG USE

Q. N.	Questions and Filters	Coding Categories	Skip to
301	How long have you been injecting drugs?	Number of Years ☐☐ Number of Months ☐☐ Don't know 98 Can't say 99	
302	How old were you when you first injected illegal/non-medical drugs? (Includes self-injection or injection by another).	Age in completed Years ☐☐ Don't know 98 Can't say 99	
303	During the past one month how often would you say you injected drugs?	Only Once a day 1 2-3 Times a day 2 About once a week 3 2-3 Times a week 4 4-6 Times a week 5 Don't know 98 Can't say 99	
304	Which of the following types of drugs have you injected ever in your life? (Include self-injected of injected by another) READ LIST MULTIPLE ANSWERS POSSIBLE	EVER USED: YES NO DK CS USED IN PAST ONE MONTH: YES NO DK CS	
	Heroin (brown sugar) injection alone)	1 2 98 99 / 1 2 98 99	
	Heroin (brown sugar) mixed and injected with phenargan/ avil or diazepam or other drugs	1 2 98 99 / 1 2 98 99	
	Tidigesic/ Lupigesic/Buprenorphine/ Norphine injection (alone)	1 2 98 99 / 1 2 98 99	
	Tidigesic/ Lupigesic/Buprenorphine/ Norphine along with phenargan/ avil or diazepam by injection	1 2 98 99 / 1 2 98 99	
	Proxyvon / Spasmoproxyvon (SP) injection using capsules	1 2 98 99 / 1 2 98 99	
	Avil injection alone	1 2 98 99 / 1 2 98 99	
	Diazepam injection alone	1 2 98 99 / 1 2 98 99	
	Pethidine / Fortwin	1 2 98 99 / 1 2 98 99	
	Other (Specify)	1 2 98 99 / 1 2 98 99	
305	How many people are in the group when you sit for injecting?	2-3 1 4-5 2 6-8 3 More than 8 4 Don't use in group 5 Can't say 99	
306	How frequently do you visit this site for injecting?	Daily 1 Once in a week 2 2-3 Times a week 3 Once in a month 4 Less than once in a month 5	

4.0 NEEDLE AND SHARING BEHAVIOURS

Q. N.	Questions and Filters	Coding Categories		Skip to
401	Think about the last time you injected drugs. Did you use a needle or syringe that had previously been used by someone else?	Yes No Don't know Can't say	1 2 98 99	
402	If you were sharing needle in the past, did you stop sharing in the last 12 months?	Yes No Never Shared Don't know Can't say	1 2 3 98 99	 501
403	Think about the times you injected drugs during the past one month. How often was it with a needle or syringe that had previously been used by someone else? *	All of the time Most of the time Some of the time Rarely Never Don't know Can't say	1 2 3 4 5 98 99	
404	In the past one month, did you ever share needles or syringes with any of the following: **READ OUT LIST:** **MULTIPLE ANSWERS POSSIBLE** Your usual sexual partner A sexual partner whom you do not know A friend Other_____	Yes No DK CS 1 2 98 99 1 2 98 99 1 2 98 99 1 2 98 99 1 2 98 99		
405	With how many different injecting partners did you share needles or syringes in the past one month?	Number of People Don't know Can't say	[ ][ ] 98 99	
406	In the past one month, when you injected with needles or syringes that had previously been used, how often did you clean them first?*	All of the time Most of the time Some of the time Rarely Never Don't know Can't say	1 2 3 4 5 98 99	
407	Do you know any person or place from where you can obtain new, unused needles and syringes when you need them?	Yes No Can't say	1 2 99	
408	Where can you obtain new, unused needles and syringes? **DO NOT READ OUT LIST.** **MULTIPLE RESPONSES POSSIBLE** **PROBE WITH 'ANYWHERE ELSE?'**	Pharmacist / chemist Any other shop Drop-in-centre Hospital NGO out-reach worker/ Peer educator Sex partners Friends Other drug users Drug dealer Buy on streets Others (Specify) Can't say	1 2 3 4 5 6 7 8 9 10 11 99	

4.0 Contd....

Q. N.	Questions and Filters	Coding Categories	Skip to
409	How many days back did you last purchase or receive a new, unused needle/ syringe?	Number of Days ☐☐ Today 1 Never purchased/ received a new, unused needle/ syringe 2 Don't know 8 Can't say 99	
410	Have you ever received services from Needle Syringe programme?	Yes 1 No 2 Don't know 98 Can't say 99	
411	If, yes to Q 410, From where (name of the source of the service)	_____	
412	Have you ever been on the methadone maintenance/treatment program?	Yes 1 No 2 Don't know 98 Can't say 99	
413	If, yes to Q 412, From where (name of the source of the service)	_____	

5.0 SEXUAL HISTORY

Q. N.	Questions and Filters	Coding Categories	Skip to
501	Have you ever had sexual intercourse? [For the purpose of this survey, "sexual intercourse" is defined as vaginal or anal sex.]	Yes 1 No 2 Don't know 98 Can't say 99	 →601
502	What was your age when you had first sexual intercourse?	Age in Years ☐☐ Don't know 98 Can't say 99	
503	Have you had sexual intercourse in the last 30 days?	Yes 1 No 2 Don't know 98 Can't say 99	 →601
504	**FOR MALE:** Think about the female sexual partners you have had in the last 30 days. In total, how many different sexual partners have you had in the last 30 days? Among these partners that you have had in the last 30 days, how many were: - Your spouse(s) or live-in-sexual partners ("regular" partners)	 Total ☐☐ Don't know 98 Can't say 98 Non Paying ☐☐ Don't know 98 Can't say 99	

5.0 Contd...

Q. N.	Questions and Filters	Coding Categories		Skip to
	- "**Commercial**" (Partners with whom you bought or sold sex in exchange for money or drugs)	Commercial Don't know Can't say	☐☐ 98 99	
	- Sexual partners with whom you are not married to and have never lived with and did not have sex in exchange for money ("non-commercial" partners) **DO NOT INCLUDE CURRENT SPOUSE(S) OR LIVE-IN SEXUAL PARTNERS (ASK OF MEN)**	Non-Commercial Don't know Can't say	☐☐ 98 99	
	- We've just talked about your female sexual partners. Have you ever had any male sexual partners?	Yes No Don't know Can't say	1 2 98 99	 →506
	- Have you had sexual intercourse with any of your male partners in the last 30 days? (sexual intercourse defined as penetrative anal sex)	Yes No Don't know Can't say	1 2 98 99	 →506
	With how many different male partners have you had anal intercourse in the last 30 days?	Male Partners Don't know Can't say	☐☐ 98 99	
505	**FOR FEMALE:** Think about the male sexual partners you have had in the last 30 days.			
	In total, how many different sexual partners have you had in the last 30 days?	Total Don't know Can't say	☐☐ 98 98	
	Among these partners that you have had in the last 30 days, how many were:			
	- Your spouse(s) or live-in-sexual partners ("regular" partners)	Regular Don't know Can't say	☐☐ 98 99	
	- "**Commercial**" (Partners with whom you bought or sold sex in exchange for money or drugs)	Commercial Don't know Can't say	☐☐ 98 99	
	- Sexual partners with whom you are not married to and have never lived with and did not have sex in exchange for money ("non-commercial" partners) **DO NOT INCLUDE CURRENT SPOUSE(S) OR LIVE-IN SEXUAL PARTNERS**	Non-Commercial Don't know Can't say	☐☐ 98 99	

Regular partners

Q. N.	Questions and Filters	Coding Categories		Skip to
506	Have you had sex with regular partner during last 30 days?	Yes No Don't know Can't say	1 2 98 99	 →510
507	Think about your most recent regular sexual partner. How many times did you have sexual intercourse with this person over the last 30 days? **REGULAR PARTNER INCLUDES SPOUSE OR LIVE-IN SEXUAL PARTNER**	Number of times Don't know Can't say	☐☐ 98 99	
508	The last time you had sex with a regular partner; did you or your partner use a condom?	Yes No Don't know Can't say	1 2 98 99	
509	How often did you and all of your regular partner(s) use condom over the past 12 months?*	All of the time Most of the time Some of the time Rarely Never	1 2 3 4 5	

** All of the time – Around 100% | Most of the time – Around 70% | Some of the time – Around 50% Rarely – 30% | Never – 0%*

Commercial Partners

Q. N.	Questions and Filters	Coding Categories		Skip to
510	Have you had sex with a commercial partner during last 30 days?	Yes No Don't know Can't say	1 2 98 99	 →515
511	Think about the commercial partners you have had in the past one month, In total, how many were: - Partners to whom you sold sex in exchange for money or drugs - Partners form whom you bought sex in exchange for money or drugs	**Sold** Don't know Can't say **Bought** Don't know Can't say	☐☐ 98 99 ☐☐ 98 99	
512	Think about your most recent commercial sexual partner. How many times did you have sexual intercourse with this person the in past one month?	Number of times Don't know Can't say	☐☐ 98 99	
513	The last time you had sex with a commercial partner; did you and your partner use a condom?	Yes No Don't know Can't say	1 2 98 99	

Commercial Partners Contd...

Q. N.	Questions and Filters	Coding Categories		Skip to
514	How often did you and all of your commercial partner(s) use condom over the past 12 months?*	All of the time Most of the time Some of the time Rarely Never	1 2 3 4 5	

** All of the time – Around 100% | Most of the time – Around 70% | Some of the time – Around 50% Rarely – 30% | Never – 0%*

Sexual History: Non-commercial Partners

Q. N.	Questions and Filters	Coding Categories		Skip to
515	Have you had sex with non-commercial partner during last 30 days?	Yes No Don't know Can't say	1 2 98 99	 →601
516	Think about your most recent non-commercial partners. How many times did you have sexual intercourse with this person over the last 30 days?	Number of times Don't know Can't say	[ ][ ] 98 99	
517	The last time you had sex with a non-commercial partner, did you and yours partner use a condom?	Yes No Don't know Can't say	1 2 98 99	
518	How often did you and all of your non-commercial partner(s) use condom over the past 12 months?*	All of the time Most of the time Some of the time Rarely Never	1 2 3 4 5	

** All of the time – Around 100% | Most of the time – Around 70% | Some of the time – Around 50% Rarely – 30% | Never – 0%*

6.0 PREVALENCE OF STIS AND TREATMENT SEEKING BEHAVIORS

Q. N.	Questions and Filters	Coding Categories		Skip to
601	Now I would like to ask you some question about your sexual health in the last 12 months. During the last 12 months, have you had a disease which you got through sexual contact?	Yes No	1 2	 →701
	ASK WITH FEMALE IDU ONLY			
602	Sometime women experience a bad smelling abnormal genital discharge. During the last 12 months, have you had a bad smelling abnormal genital smell?	Yes No Don't know Can't say	1 2 98 99	

6.0 Contd...

Q. N.	Questions and Filters	Coding Categories		Skip to
603	Sometimes women have a genital sore or ulcer. During the last 12 months, have you had a genital sore or ulcer?	Yes No Don't know Can't say	1 2 98 99	
	ASK WITH MALE IDU ONLY			
604	Sometime Men experience a abnormal discharge from penis. During the last 12 months, have you had a abnormal discharge from penis?	Yes No Don't know Can't say	1 2 98 99	
605	Sometimes men have a sore or ulcer on and around penis. During the last 12 months, have you had sore or ulcer on and around your penis?	Yes No Don't know Can't say	1 2 98 99	
	IF ANY OF 601 OR 602 OR 603 OR 604 OR 605 IS YES ASK 606 OTHERWISE GO TO 701			
606	Last time you had any of the above three problems did you seek any kind of advice or treatment?	Yes No	1 2	 →701
607	Where did you visit **(PROBE - ANY OTHER PLACE)** **RECORD ALL PLACE MENTIONED**	Government Hospital Health post STI Clinic VCT Centre Private Hospital Other (Specify)	A B C D E F	

7.0 HIV TESTING

Q. N.	Questions and Filters	Coding Categories		Skip to
701	I don't want to know the result, have you been ever tested to see if you have HIV?	Yes No	1 2	 →705
702	When was the last time you were tested?	Less than 12 months ago 12 – 23 months 2 or more years ago	1 2 3	
703	I don't want to know the result; did you get the result of the test?	Yes No Don't know Can't say	1 2 98 99	
704	Where was the test done?	Government Hospital Health post STI Clinic VCT Centre Private Hospital Other (Specify)	1 2 3 4 5 6	
705	Do you know o a place where people can go to get tested for HIV/STI?	Yes No	1 2	 →END
706	Where is that place? **(PROBE: ANY OTHER PLACE)** **RECORD ALL PLACE MENTIONED**	Government Hospital Health post STI Clinic VCT Centre Private Hospital Other (Specify)	A B C D E F	

APPENDIX D

STEERING COMMITTEE MEMBERS

1. Dr. Shyam Sunder Mishra, Vice Chair and Chief Executive, HSCB - Chair
2. Mr. Sanjay Rijal, HSCB - Member
3. Mr. Dilli Raman Adhikari/Mr. Deepak Karki, NCASC - Member
4. Dr. Sharad Ghimire, Family Health Division - Member
5. Mr. Dhruba Ghimire, HMIS - Member
6. Mr. Alankar Malviya, UNAIDS - Member
7. Dr. Atul Dahal, WHO - Member
8. Ms. Binija Goperma, UNODC - Member
9. Dr. Laxmi Bilash Acharya, USAID/ASHA Project - Member
10. Manisha Dhakal/Pinky Gurung/Salina Tamang, FSGMN/BDS - Member
11. Aruna Pant, UNDP - Member

Technical Expert (Invitees)

1. Ms. Tobi Saidel (From World Bank)
2. Dr. S.K. Singh (From UNAIDS)
3. Ms Viginia Loo (From World Bank)
4. Mr. Nischal Basnet (From UNAIDS/TSF)

APPENDIX E

NAME OF CO-INVESTIGATORS FROM MARPS COMMUNITY

Following members' contribution is greatly appreciated as they enabled study to compute/ contact MARPs in their respective locality.

Banke: Rajendra Anaujiya, Rohit Tharu, Kalpana Gautam, Harikala Neaupane, Sita Nepali, Chanda Sunar and Sita Thapa

Bara: Sanu Maya Chaudhary, Devi Chimoriya, Santoshi BK, Shabuddin Miya, Hari Chandra, Mahara, Bikash Guragain, Irsad Ansari, Abdulesh Ansari, Rama Kant, Jata Shankar and Sanjay Poudel

Bardiya: Raj Rani Chaudhary, Najima Khatun, Maya Rani Chaudhary, Dhanju Chaudhary, Sita Chaudhary, Gita Nepali, Suresh Tamata, Nikhil Giri, Shila Chaudhary, Chitra Pun, Moti Nepali, Abina Tharu, Anita Tharu, Dipa Chaudhry, Bal Kumari Badi and Pravakar Khadka

Bhaktapur: Kumar Rajak, Amrit, Nirmala Kyastha, Sujan Bhomi, Kamala Karki, Rama Thapaliya, Jyoti Kumari Dhungana, Anita Gole, Lila Rai, Sajana Devi Rai, King Neaupane, Bodh Neaupane, Satish Shrestha, Purna Chanda Poudel, Shyam Shrestha, Jyoti Thapa and Nikesh Shrestha

Chitwan: Seema Gurung, Nisha Shrestha, Usha Shrestha, Phoolmaya Tamang, Samjhana Thapa, Suda KC, Narimaya Gurung, Laxmi Magar, Ganga Basnet, Bimala Chhetri, Kamala Chaudhari, Parbati Khanal, Maya Pathak, Kalpana Pariyar, Narayan Magar, Kabi Raj Gurung, Jyoti Karki, Anil Adhikari, Kumar KC, Ganesh Pariyar, Susma, Rajesh Rai, Arjun Thapa, Yam Bahadur Kunwar, Puspa Hamal, Sher Bahadur Gurung, Sishnu Nyure, Chet Nath Ojha, Bipin Gurung, Bharat Ghimire, Sita Karki, Prem Magar, Gyanu Lama, Hem Limbu, Mina Karki, Janu Lama, Tek Bahadur.Lama and Bisram Khatiwada

Dang: Deepak Nepali, Maya Oli, Sita Chaudhari, Goma Chaudhari, Shardha BK, Basanta Acharya, Babita Bista, Radha Karki, Preeti Ali, Laxmi Nepali, Goori Ali, Niranjan Devkota, Parmila Nepali, Tara Chaudhary, Tara Rana, Abina Tharu, Anita Chaudhary, Dipa Chaudhary, Rajrani Chaudhary, Najina Khatun, Maya Rani Chaudhary, Dhanju Chaudhary, Gita Nepali, Suresh Tamatta, Nikhil giri, Chitra pun and Moti nepali

Dhading: Sita Shrestha, Manita Subedi,

Dhanusa: Abdul Ahmad,Tej Narayan Yadav, Sanjeev Yadav,Rameshwor Raut, Puspa Devi Yadav,Shila Jha,Shree Prasad Sah,Ram Jatan Sah,Pramila Sah

Jhapa: Rabindra Poudel,Amu Limbu, Sabina,Anita Rai, Samjhana, Sangeeta, Sita Thapa,Ananda Dhakal,Anisha Adhikari, Safal Tamang, J Udash, Subash Limbu, Basanta Subba,Tulsa, Hasta Magar, Rajendra Rai, Suraj, Krishna Pradhan, Bijay Shah, Milan Gurung, Bijay Shrestha, Bijay Dhakal, Mahesh Tamang, Dipak Jee, Susmita, Chitra Thapa, Shanti Thapa, Prem Thapa

Kailali: Rosan Nepal, Durga Bhat, Ramesh Bhatta, Kushum Chaudhary, Narayan Das Chaudhary, Sushil Chaudhary, Ram Chandra Chaudhary

Kanchanpur: Mahesh Chaudhary, Sindu Modai, Dharma Raj Bhatta, Pushkar Bhatta,Anu Karki, Damodar Joshi, Nima Chaudhary, Puna Sapkota, Dutha Rana, Nabraj Ojha, Bhisma Bhatta, Bhagal Ram Chaudhary, Jay Raj Joshi,Aasu Amate, Ganesh Joshi

Kapilbastu: Mena Koiri, Hema Aryal, Chemeli Chaudhary, Prema Rokka, Prakash Subedi, Prakash Ghimire, Prashant G.C, Sarju Mani Tiwari, Dambar Brd.Poudel, Dinesh Ojha, Sammi Koiri, Kamala Karki, Ram Binod Chaudhary, Santa Adhikari, Sagar Agrahari, Hari Shankar Upadhaya, Dipendra Mishra

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Kathmandu: Archana Khadka, Laxmi Sunuwar, Ambika Nakarmi, Liza Lama, Pancha Maharjan, Sunita Sharma, Seasom, Raj Kumar Gurung, Dipu Shrestha, Suresh Mahara, Bal Krishna, Subash, Dil Kumari,Tara Khadka,Asha Kumari Thapa, Kamala Dhakal, Niraj Shrestha,Amrit Adhikari, Om Prakash Chaudhary, Suman Maharjan,Aman Rai, Indra Lama, Nischal Adhikari, Raj Kumar Rai, Sarad Shrestha, Nirmal Manandhar, Sanjay Gurung, Sunita Rai, Sita Shrestha, Ukesh, Laxmi Shrestha, Rajesh Maharjan, Raju Ghale, Yajna Raj Shrestha, Kumar Chaudhary, Balram, Anil Sherpa, Chandra Gurung, Govinda Chaudhary, Kumar Budhathoki, Suku Tamang, Dipendra Chaudhary, Pradip Adhikari, Rojan Thapa, Ravi Jee, Honey Jee, Sila Pant, Durga Simkhada, Nabin Thapa, Kanchhi Lama, Laxman Lama, Mohan Magar, Shrijana Thapa, Soniya Gurung, Subash Mali, Bishal Tahkuri

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APPENDIX F

MONITORING CHECK LIST

Kathmandu Training

Key issues to be monitored	Yes	No	Remarks
Was Three days training conducted?			
Was the batch of 30 to 40 professional investigators per training session maintained?			
Were MTCs also trained with professional investigators on third day of the training?			
Did the training follow the training schedule?			
Were facilitators able to respond the queries?			
Did the MTCs participants actively participate during training?			

Regional/ District Training

Key issues to be monitored	Yes	No	Remarks
Was two days training conducted?			
Was the batch of 30 to 40 professional investigators per training session maintained?			
Were MTCs trained with professional investigators?			
Were MTCs and researcher trained together?			
Did the training follow the training schedule?			
Were facilitators able to respond the queries? Did the MARPs participants actively participate during training?			

Tool 1

Key issues to be monitored	Yes	No	Remarks
Did research team interact with DACC coordinator and major stakeholders prior to the stakeholder's meeting and prepare a detail list of location/sites in the district where HIV /AIDS program are already in progress?			
During that interaction, did research team collect all available secondary information and review them before the stakeholder's consultation meeting?			
Did the research team request the participants to fill the attendance sheet along with additional information about their organisation and their area of involvement?			
Were almost all key INGO/NGOs present in district level consultation meeting with stakeholders?			
Was there a healthy discussion to have a comprehensive insight in HIV/AIDS scenario in the district?			
Was there a discussion with the programmatic response to the epidemic in the district?			
Was there a discussion on changing face of epidemic in the district?			
Was there a discussion to get the response and major gaps in effectively addressing the needs of MTCs in the district?			
Did the facilitator give a good background of STI/HIV situation in Nepal?			
Did the facilitator share issues related to HIV/AIDS at most at risk population like FSW, IDU and MTC?			
Were the following major topics covered in the discussion?			
-Types of MTCs present in the district			
-Changes in their number over a time			
-Seasonal variation			
-Availability of services for MTCs			
-Variation in the service provision			
-Major gaps in the existing services			
Did the facilitator explain about the difference between location and sites?			
Was there any duplication between sites and location?			
Was the comprehensive list of locations and sites within the location of MTCs concentration prepared?			
Were the geographical district maps used to divide the location?			
Did the information of KI / organisation collect for each location and sites?			

Tool 2

Key issues to be monitored	Yes	No	Remarks
Did any member of research team round up the location and identify major landmarks?			
Did assessment of hot spots / sites was completed using listing technique after segmenting location in smaller operational areas?			
Did research team draw a rough sketch of the site, after fixing the tentative boundaries of the location for broad mapping?			
Did research team draw a rough sketch of the site after fixing major land marks (Hospital/ Nursing homes, clinic , STI treatment centres, VCT , DIC ,Schools and Colleges, Post office etc) for broad mapping ?			
Did team members draw rough sketch of the sites on the full back page of Tool 2?			
Did the broad map provide complete geographical overview of the site, with landmarks in areas and with location of MTCs in different parts of site?			
Did the broad map provide complete social overview of the site, with landmarks in areas and with location of MTCs in different parts of site?			
Did the research team consult with 4-6 KIs to ensure the completeness in broad mapping exercise?			
Did the research team ask KI about the places where MTCs are found and ask the respondent to mark such places on the map and probe for more such places?			
Did the research team probe the KI about the hot spots by mentioning the name of specific landmarks?			
Did the research team enquire about approximate number of MTCs operating from the hot spots in a normal day?			
Their Typology			
Peak hour of their functioning			
Different types of services available in the locality or in the near by areas			
Did they record the minimum, maximum and base figure, which emerged as a consensus of the group?			
Did they record the peak hour of their functioning in the hot spot in interval rather than a specific time?			
Was a comprehensive repetition done while asking KI for recording the maximum possible hotspots in the boundary of the site?			
Were 4-6 KI asked about various types of risk behaviours?			

Tool 3

Key issues to be monitored	Yes	No	Remarks
Did the research team visit a site for three consecutive days at different point of time?			
Did the team plan first two days for observations and individual level interactions/ interviews of primary and secondary KIs before conducting PRA?			
Did the team conduct PRA on the third day			
On the day of conducting PRA, did the team collect a group of 2-3 MTCs with the help of community member in the team and also 2-3 secondary stakeholders or KI?			
Was heterogeneity of KI maintained while conducting PRA?			
Was consent obtained using standard consent form?			

Comments and Suggestions:

For Further Information

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