

## “Geographical mapping of high risk activities (HRA)” in urban areas

A tested methodology for estimating the risk population for planning HIV intervention programmes.

### Background:

The number of people living with HIV (PLWH) in India is estimated to be 5.2 million (0.88%), the second largest in the world. Over the years the virus has moved from urban to rural and from high risk to general population disproportionately affecting women and the youth. The main transmission route continues to be sexual (86%).

There are three fundamental challenges for implementing the HIV prevention programmes

- 1. Wide spread with significant geographic variation:** There are specific key populations, due to a mix of factors, who will be “especially vulnerable” and “most-at-risk” to HIV infection. Their risk depends on the HIV prevalence within their community (state and district) power relations, being married or not, sexual networks and communities, as well as social, economic and political context, all of which can affect their risk of infection.
- 2. Different modes of transmission:** Sexual contacts, multiple sexual partners, drug users...etc.
- 3. Epidemic spreading from high-risk groups to the general population**

The success of HIV prevention programme depends to a great extent on how best the above mentioned issues are understood for planning evidence-based interventions to prevent potential danger of further spread of HIV infection

It is extremely important to have accurate data on area specific risk population, their volume, profile and other details like where exactly risk activities take place, fluctuations in the volume of risk population, their movement etc.

Our experience in sexual health proves that conventional methodologies of eliciting data on high risk population by and large fetch estimates of ‘potential risk groups’ such as occupational groups (truckers, migrants, street children, etc) that are far from ground reality.

As the information is area specific and related to behavior the bias of social desirability to discuss about matters related to sex, sexuality, fear of disclosure, presence of different levels of networks and power structure, suspicious nature of the risk groups prevents collection of reliable grass-root level data on these issues. Most potential respondents consider these sensitive and stay away from the data collection process. It is even more difficult to collect and discuss about these issues in general community settings (such as villages, common meetings, etc.) due to social norms and practices; as a result, most of the conventional research methodologies’ do not come out with reliable answers.

However, data on these is most important to plan for effective interventions. So, it is quite essential to develop new research methodology to obtain appropriate data to understand the situation better.

The ‘Geographical mapping method’ is one such method developed by CATALYST MANAGEMENT SERVICES to understand the most vulnerable population, this methodology helps to enumerate the number of risk populations operating in certain geographical area, also helps for further classification of the risk groups depending up on their risk behavior and helps to derive basic insights into factors that make those populations vulnerable to HIV.

This methodology was the result of CATALYST MANAGEMENT SERVICES’s persistent efforts in experimenting new ways and means of action research in evolving an effective participatory methodology that ensures the involvement of primary stakeholders from the coverage area throughout the process in obtaining the required accurate information which is extremely near to the ground realities. This methodology has been tested across various geographical settings in India, Pakistan and Canada.

Purpose of this note is to provide brief details about the process and methodology of the ‘Geographical Mapping’ method.

### **Evolution of Geographic Mapping**

The idea of geographic mapping evolved during the study conducted in the year 2002-03 by Catalyst Management Service Pvt Ltd. The purpose of the study was to conduct Mapping and Situation Assessment in three high prevalence districts in 3 states of India. (Karnataka, Rajasthan and Mizoram) This study was undertaken as a first step towards designing an urban demonstration project being implemented by the India-Canada Collaborative HIN/AIDS Project (ICHAP) the primary objectives of the study were

- to map locations of high risk behavior in the selected districts
- to estimate the number of participants in risk behavior
- to understand the profile of the participants in risk behavior
- to assess the needs of vulnerable groups with respect to prevention, testing and care for STI and HIV

This provided an opportunity to test out the mapping methodology. During this study the organisation used the conventional mapping methodology.

An analysis of the study findings highlighted the following issues

- Instead of providing estimates of certain occupational groups within administrative boundaries, it is required to understand area specific estimates of high risk population with typologies and fluctuations over time.
- Instead of being specific and swift, the focus of mapping was too much on collecting detailed information which was not imperative for the planning stage.

- The respondents selected as respondents in individual and group activities were not appropriate, some of them are unaware about the risk population, some of them are not willing to report the sensitive information because of the fear of breaching the confidentiality and social desirability bias<sup>1</sup>.
- Mapping process assumed that selected pockets of the coverage area had risk activities and tried to validate the assumptions instead of an unbiased combing of the territory.
- The conventional mapping process does not ensure the involvement of primary stakeholders<sup>2</sup> as part of the mapping team, but only as key informants, hence could not unearth multiple networks operating in the area.

It was obvious that there was a lot of sensitivity associated with this type of data. If the data collecting tools and methodologies were not appropriate to the requirement; there was every like lihood that reliability of collected data will be low.

Experience of working in three states made us to realize that the mapping study requires systematic research strategy which takes the research team to the specific locations where the risk population is existing , the research should have simple methodology which is clearly understandable, easily verifiable procedures that reduce potential embarrassment, ensure confidentiality, involvement of primary stake holders in the data collection process and support researchers in securing the trust and cooperation of respondents, it was also realized that only selected key informants can able to provide the realistic data.

This understanding encouraged CMS to try new ways and means of research methodologies, as a result of the relentless efforts the “Geographical Mapping Methodology” was emerged during the year 2004.

This methodology was put to test in 198 urban towns of Karnataka which is one of the six high HIV prevalent states in India. The outputs were later validated from intensive fieldwork during project implementation stage and the estimates of geographical mapping were found to be very close to field realities with a margin of variation of only +/- 10 percent. It was also found that the geographic mapping estimates were 6 to 7 times higher than the conventional mapping estimates for the same territory.

The same methodology has been successfully tested out in 151 urban towns of Kerala state, 42 towns in Maharashtra, all towns and cities of Mizoram and Ajmer district of Rajasthan.

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<sup>1</sup> <sub>6</sub> ‘Social Desirability Bias’ occurs when data is sought on attitudes toward or experience of activities that run contrary to dominant local social norms or the respondents’ perceptions of the views of the person(s) conducting the research process. In any given research tool, the extent of bias can be exacerbated by shyness or fear of breach of confidentiality

<sup>2</sup> Persons who are involved in risk behaviour (Ex: FSWs, MSA)

CMS also provided technical support to HASP<sup>3</sup> to conduct geographical mapping of high risk areas in all major towns and cities in Pakistan.

## The Principles

**Participatory** – The study will be conducted by the trained field team the team is selected based on criteria including district representation, gender, previous research or HIV intervention experience, other field experience and documentation skills. The study team will also include some primary and secondary stakeholders (sex workers, MSMs, auto drivers, etc).

In each site, community members will be involved and individual and group interactions will seek their views and perceptions.

**Rapid** - Study will be a rapid yet comprehensive. It will seek to provide triangulated data across the entire range of information needs.

**Mixed method** – The Study will have both quantitative and qualitative data, providing an appropriate mix of both.

**Optimal Ignorance** - To be efficient in terms of both time and money, study approach intends to gather just enough information to make the necessary recommendations and decisions.

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<sup>3</sup> Canada Pakistan HIV/AIDS Surveillance Project

## Methodology

A simple interview methodology will be used to collect data from the key informers.

### Key Informants

Key Informants are persons who are likely to have information on the profiles of the locations and an estimate of number of people involved in high-risk activity. The study interviewed Key Informants to source such information. Key Informants were classified into three types:

- **Primary informants** – Persons who engage in high-risk activity themselves, for example, sex workers, clients of sex workers, MSM and injecting drug users.
- **Secondary informants** – Persons who are involved in the network of high-risk activities or are intimately acquainted with primary stakeholders, such as pimps, auto drivers, panwallas, shopkeepers, coolies and hamalis.
- **Tertiary informants** – Persons involved with high risk activity groups in a professional capacity. These include NGO workers, government health officials, police personnel, pharmacists, sexual health service providers, etc.

### Tools used in the study

A combination of following methods and tools will be used.

- In-depth individual interviews (lead through checklists)
- Group Discussions
- Observations

### Techniques used in the study

- Clean slate method
- Snow balling technique
- Reaching saturation point
- Triangulation

**“Clean Slate” Method:** This is the method in which the field team will reach out to each and every part of the town to collect information about the places.

**“Snow balling”:** This is a technique where each Key Informant interviewed was asked to provide names of other places in town where high-risk activity occurs, and also provide names and contacts of other potential Key Informants. The field team followed all the leads and kept asking for potential locations/spots, till the data became repetitive and all the location/spots were mentioned by all the stakeholders. This process ensured that places with a concentration of high-risk activity got mentioned and were taken up for profiling.

**“Saturation point”:** While doing FW in the beginning the team gets lot new places. As the FW progresses, the number of new places will come down. At certain point of time the number of new places will get stagnated. This point is called “Saturation point”.

**“Triangulation”:** Conducting five Key Informant interviews for a spot ensured triangulation. This was crucial for verifying the authenticity of data given by each Key Informant. In case of variations in data, field techniques were evolved to reconcile the same (e.g. give more weight to the primary stakeholder informant).

## Data Collection

The process of data collection through Key Informant interviews is carried out in three steps.

**Step 1:** At the first level, the field team, through Key Informant Interviews (ranges from 50 to 70, depending on the geographical spread of the territory) sweeps the whole territory by a trawling approach to arrive at a list of places where high risk activities take place. Here the informants were mostly of the secondary and tertiary stakeholders. The data will be collected from all parts of the territory. These interviews are referred to as **Level 1 interviews** (L1) and will be documented. Key informants are identified through snowballing technique

### Information elicited at Level 1:

- Places<sup>4</sup> within the territory where high-risk activity occurs, along with preliminary estimates of participants in the risk activity.
- Contact details of key informants who could provide further information on high-risk activity.

Once information on the places of high-risk activity in the territory is obtained, the places will be classified into locations<sup>5</sup> and spots<sup>6</sup>.

**Step 2:** The team then collate the data gathered. The top 10 to 15 spots will be identified based on frequency of mention. Locations with the largest estimates of participants in high-risk activity; highest number of spots and spots were rare HRA (transgender sex workers, Injecting Drug Users, etc) will be selected for detailed spot profiling.

Generally, most of the spots mentioned during Level 1 interviews got covered for spot profiling. During this process the spots were validated and clubbed with the help of the primary stakeholders

**Step 3:** The third step in data collection involved at least five KI interviews at each top spot (output of step 2). The focus of these interviews, termed Level 2 interviews, was to solicit information on:

- The estimate (range) of participants in high-risk activity and typologies

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<sup>4</sup> Place: Is a non validated specific small area reported by the key informant during stage 1 that can be identified with a landmark. Eg. Bus stop in front of metro cinema.

<sup>5</sup> Locations are geographical spaces commonly referred to as 'areas' by the local community. These are smaller than wards, but may stretch across one or more wards, for example, a market, a highway stretch or an industrial area.

<sup>6</sup> A place when validated for the presence of risk activity becomes a spot

- Mobility pattern of the key populations
- Events causing fluctuations in the number of participants at the spot
- Names and contact details of STI service providers

Conducting five Key Informant interviews for each spot ensured **triangulation** of the data collected. This was crucial for verifying the authenticity of data given by each Key Informant. In case of variations in data, field techniques were evolved to reconcile the same (e.g. give more weight to the primary stakeholder informant).

### Group discussion

Another activity as part of step 3 and spot validation is facilitating a group discussion with each of the available key population groups identified in the territory. Through this process rich qualitative data on the high risk groups can be collected. It also helped in triangulation of the data collected in Level 2 interviews.

### Team

A team should be composed of professionally trained researchers along with primary and secondary stakeholders ensuring gender balance. The selection of personnel will be based on criteria including district representation, familiarity to the local language, previous research or HIV intervention experience, and other field experience and documentation skills. It was also ensured if the mapping is done for an intervention which is already being implemented, field staff of the implementing organisation, and is part of the team.

### Outputs

The outputs of the geographic mapping exercises are detailed in the reports “Mapping of High Risk Activities in Karnataka”, “Participatory Site Assessment in the State of Kerala” as well as various other reports available at Catalyst Management Services

### Strengths of Geographical Mapping

The mapping data is meant to give an estimation of the key population within the territories. It will provide directions for interventions on the ground.

The mapping findings will help to determine the following:

- Number of interventions required depending on factors such as:
  - The size of the territory
  - Estimated number of people involved in high-risk activity
  - Estimated number of participants coming from outside the territory and the number of people belonging to the same territory

- Spread of high-risk activity among territories
- Weekly and seasonal variation in key population volume
- The intervention strategy. This includes details such as,
  - the territories where interventions should be located, their initial coverage and subsequent expansion plans
  - the strategy to cover territories where the key population operates only during the high volume days
  - the strategy to cover people involved in different types of high-risk activities (based on their numbers and locations)
- Focused strategy for addressing the needs and concerns of the unique typologies.
- Locations in territories where interventions need to be made so as to reach the largest proportion of people involved in high-risk activity.
- How to network with service providers such as condom manufacturers/distributors, STI service providers.
- How to network with Network Operators for support during further research and programme implementation.
- Budgeting of interventions.

### **Limitations**

- The Mapping exercise demands specialized skills and research capacities of the field staff that are not easily built through one training alone.
- As the study adopted rapid methodology the team had to complete end to end data collection within a short period.
- The exercise demands for the active participation of primary stake holders, which may not be possible in some areas
- Quality control was one of the main challenges of the mapping exercise since a key role in data collection and validation was being performed by the local people and by primary stake holders who are not exposed to research activities and their reading and writing skills were limited.
- Managing the primary stake holders in the research team may cause some difficulties.