



**INTERNATIONAL ACADEMY**  
Initiative in Education & Lifelong Learning

## **Appreciation Programme**

# **Participatory Enumeration and Mapping**

## **Module - II**

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**Participatory Enumeration and Mapping**

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## Table of Contents

<b>S. No.</b>	<b>Topic</b>	<b>Pg. No.</b>
	Introduction	3
<b>Unit 1</b>	<b>Initiating the Process: The Motivation</b>	<b>4</b>
1.1	Fear of evictions	5
1.2	Demands for services	5
1.3	Making themselves visible	5
1.4	Challenging State Data	6
1.5	Challenges of Local Situation	6
<b>Unit 2</b>	<b>The Survey</b>	<b>8</b>
2.1	Slum Profiles	8
2.2	Collection and Study of Secondary Data	10
2.3	Developing Survey tools	2
2.4	Settlement Survey: The Mapping	13
2.5	Filling out Settlement Survey Form	15
2.6	Community Meetings	16
2.7	Data Entry and collation of information from several settlements	16
2.8	Follow up visit	17
2.9	Challenges of this process and overcoming the obstacles	18
<b>Unit 3</b>	<b>Case study</b>	<b>20</b>
3.1	I: Dharavi Redevelopment	20
3.2	II: Slum Mapping Project- Cuttack, Orissa	22
	References	24

## Introduction

Slum profiles are created through consultations and discussions with the community of the settlement and by a mapping team. This module will explain the processes needed to assist communities to undertake slum profiling and familiarize the professional with the various stages of the process and methodologies adopted to assist the communities to undertake slum profiling. The community has to be either motivated internally by its members to carry out slum profiles or has to be introduced to the concept by professionals.

## **Unit 1: Initiating the Process: The Motivation**

Slum profiles are conducted to either articulate the grievances of the residents to the city officials; to demand recognition from the city as a settlement or settlement to get services from the city; to prevent an existing threat of eviction or demolition of houses. Slum profiling can be initiated by the community themselves, or by external agencies, such as a NGO or government agency, encouraging the community to prepare its profile. In addition, at times a community can initiate slum profiling if numerous settlements throughout the city or area are exploring the process. Regardless of the grounds of conducting slum profiles, communities who gather information begin to explore a collective identity; begin to describe themselves in a more articulate way; are able to compare their situation with other similar communities and collectively represent themselves to the city.

### **1.1 Fear of evictions**

Slum communities regularly face the threat of evictions since a limited number of slum settlements are actually “recognised” or notified” in the eyes of the city. Instead of facing the threat of eviction individually, if the community comes together and collects the information needed, then they can produce a new sense of solidarity and critical mass.

## **1.2 Demands for services**

Since informal settlements and settlements are seldom covered in official surveys or considered for planning purpose, they suffer from insufficient or lack of provision of basic services. This increases the hardships of the community and prompts them to take action against the policy makers or elected representatives responsible for providing them with the basic services. The community can be assisted in such situations to start assessing the intrinsic potential of its members, to collate information about their situation, and as a collective effort, one should start enumeration and mapping their settlement.

## **1.3 Making themselves visible:**

At times, informal settlements occupy the land which belongs to the local government. If the local government plans to utilize the land where the informal settlement is located, the community faces the immediate threat of eviction and relocation. On occasion, the local government proposes alternative relocation sites or offers paltry compensation to the members of the community. The community naturally tends to organize itself and start negotiating with the local government for better options. Communities which have carried out detailed enumeration and mapping exercise are able to show the importance of their settlement both in economic terms as contributors to the city's economy as well in social terms as manpower required to service the vicinity. The wealth of information provides the community with powerful tools to negotiate with the local government.

### **1.4 Challenging State Data**

The state institutions rarely have comprehensive data on any given slum, or a complete list of slums, and often cannot be disaggregated. This leads to the formation of a myopic view point of the informal settlements. Community led profiles helps to produce comprehensive lists of informal or slum settlement which the local government agencies accept if they witness how the process is planned and executed. Often, this is the first time that the government has a complete and realistic data of the informal settlements.

### **1.5 Challenges of Local Situation**

Community driven documentation recounts the current situations of the settlement. It allows the residents to assess the problems they face, understand their own resources and consider their priorities. These initiatives often provide the first opportunity for residents to engage in a settlement-wide discussion about their needs and priorities.

**The most common reasons** for imitating surveys: The first and foremost reason to embark on the need to collect data is when the settlement is facing a crisis situation. Almost all informal settlements are under the constant threat of evictions which adds to the enormous financial burden on the households. In the process of organizing the community, surveys often becomes the first step to bring various individuals under an organization. It helps in systemizing information, understanding the history, evaluate the impact of evictions on the settlements, and explore various possibilities to resolve the issue.

The second common reason to motivate and undertake survey by the community arises from the community readiness to accept change. Given the callous approach of the government to resolve the issues of informal settlements, slum communities have developed a pessimistic vision towards change. This distancing could be the result of behaving on survival mode, accepting that nothing can be done, or waiting for an outsider to do something to improve their situation. Undertaking information gathering about themselves allows the community to re-examine their situation, take stock of what is happening, understand what needs to be changed, and determine the role they themselves will play in this process.

## Unit 2: The Survey

The survey consists of the collection of information and data in a two stage manner. The first stage is to collect data on the settlement level; in the second level, detailed information is collected at the household level.

In this module, the data collection process at the settlement level, which is used to prepare slum profile, will be explained in detail. Slum profiles are the basis for carrying out the enumeration process at the household level which is further explained in the coming modules.

### 2.1 Slum Profiles

Preparing slum profiles is the first stage where the individual member of the community contributes their knowledge about the settlement. For communities to get motivated and feel confident to partake in these activities, knowledge and stories of successful case studies are shared with the community. Older members of the community are encouraged to tell the experiences of the challenges of creating the settlement or what they know of how the settlement was formed and circumstances under which the community evolved. Youth are often better at making lists, counting, and actual filling of forms. The women within the community often share experiences of amenities and how they affect their daily life, about eviction threats, the community's relationship with municipality, schools, and police. Through community meetings, such experiences can be shared and recorded.

A settlement profile does not produce detailed data on each household and each house plot; it includes the information about the settlement's name, history, internal amenities and facilities, occupation pattern, employment rich area, mode of transport to access place of employment, accessing basic amenities, details on land ownership, types and use of dwelling structures, etc.

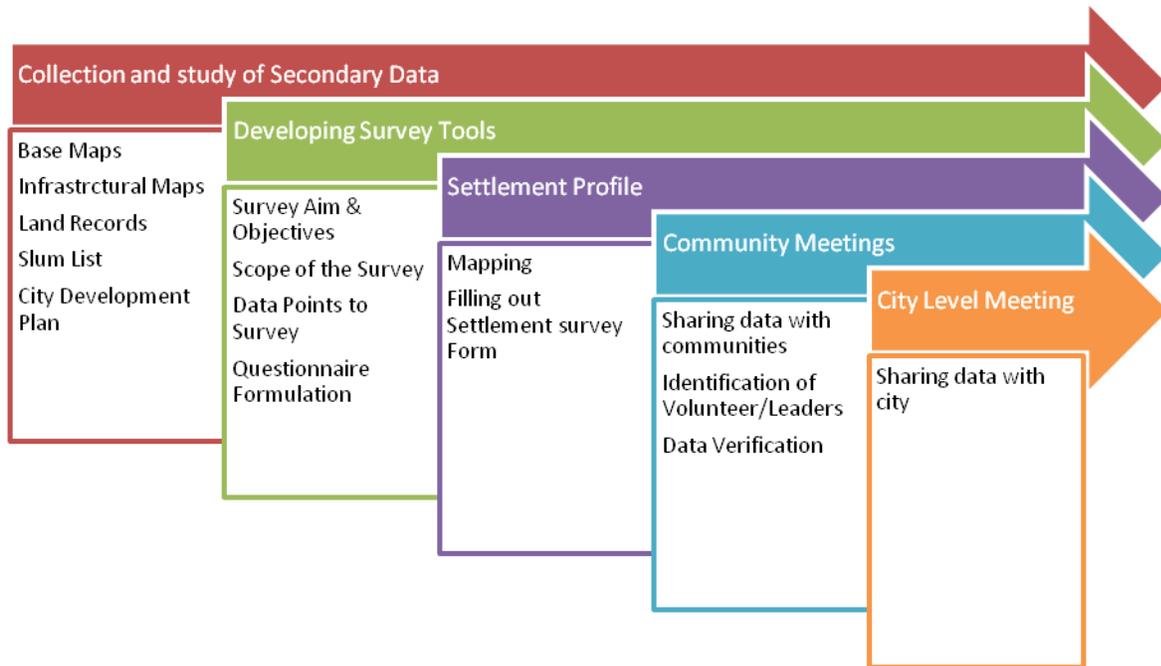
### **A. Single settlement profile, ward level profiles or city wide slum profiles**

Initiating a process through which the communities undertake their own slum profile is as important as developmental interventions which have a critical mass of communities aggregating their data and participation, thus allowing for the potential of supporting advocacy. The benefit of slum profiling demonstrates to the community the advantage of extending the parameters to encompass a larger geographic area (ward) or a city. The building block of creating a profile remains the same.

### **B. Roles and functions professionals can play to contribute to deepening and strengthening data communities produce in slum profiles.**

Data collection of any sort is an activity and professionals can also collect the information themselves. Facilitating communities to build the image of their settlement and comparing it with others produces knowledge and participation. Professionals often make the mistake of viewing delays in data collection and efforts in motivating the community as a waste of their time. However, in the long run, the value of the information gathered and its use demonstrates it is worthwhile in practice and in terms of creating knowledge that people own.

Professionals can assist the community by understanding the need of the hour, assessing the availability of resources and skills, assisting in the collection of secondary data, thus strengthening the community’s case.



**Figure 1 The Settlement Survey Process**

The above diagram reflects the basic stages that are normally carried out during a survey. Each of the above stage is explained as following.

**2.2 Collection and Study of Secondary Data**

Professionals assisting slum profiles should collect and analysis the secondary data collected by the city or other researchers about the city or the region. The data collected by the communities can either deepen insights and knowledge already available about the communities; fill the gaps in existing data; contest the data collected by the state.

**Participatory Enumeration and Mapping**

Land records either in form of cadastral maps; tax revenue maps, etc. assess the ownership of the land on which the community resides.

Accessing the physical infrastructure maps to locate the trunk infrastructure line, manholes, water supply network, etc. helps to connect what people say about amenities and services. The local government reports on the settlement and its inhabitants provide an insight on the local government's assessment of the settlement and its analysis of the statutory benchmarks by which government agencies plan their programs.

Satellite images of the city detailing the images of the settlement helps to access and locate the relationship of the settlement with the immediate vicinity. When these images are shared with the community, they get a different perception of their location with relation to the city. In addition, it helps the community to understand how they can produce maps of their locality using such outlines.

Census data and reports provide information about the demographic and socio-economic constitution of the city. Even though the information is rarely accessible at the settlement level, it could prove useful to compare and contrast the data on the city level. Often the community surveys highlight the internal inequality and exclusion of data at the city level. Under Jawaharlal Nehru National Urban Renewal Scheme (JnNURM), cities were required to prepare City Development Plans (CDP) to access the funds. The CDP's were the first holistic document prepared by the civic authority assessing the present situation and laying the vision for development for the upcoming years. Studies show that the city did not have a data base on the informal settlements

#### **Participatory Enumeration and Mapping**

or slums and that their needs and special challenges were not included adequately even though they represented 25-26% of the population of the city. Studying such plans and locating the factual discrepancies is as critical as locating the inclusionary features.

Land Use maps and Development Plans of a city play a vital role in providing the direction of the growth of the city. Assessing and procuring information related to the informal settlements through these documents also provides vital information for the slum profile.

Often secondary data is not readily available and needs numerous follow up meetings with the government agencies. Professionals can facilitate the communities to collect and own data and assist them to seek other information.

### **2.3 Developing Survey tools**

The relationship between collection of secondary data and survey is not sequential; it can happen before, simultaneously, or after the slum profiles. It is important to demonstrate how to make the connection at some point.

**Means of Data collection:** questionnaires, hand drawn maps, GPS devices to mark boundaries stories and narratives.

Three types of data collection, objective, spatial and anecdotal, are accumulated by the communities. The first set of data is the objective information: how many structures, water condition, the amenities available etc. The second, spatial information is recorded with hand drawn maps of the settlements and/or GPS devices to mark the boundaries.

The third set of data comes from anecdotes about how settlement began; where the

#### **Participatory Enumeration and Mapping**

various communities came from; how their relationship with each other and with the city has evolved over time; their perceptions about community and formal leadership etc. Anecdotes and storytelling is as valuable in creating collective histories about settlements as data is, and ensuring both get documented is vital. Audio recording on simple MP3 players which are cheap and accessible or even audio or short video using simple devices (e.g. mobile phones) is a practice often used to record profiles and capture anecdotes. All are vital and should be allowed to intersperse with each other.

Questionnaire Formulation – Designing of questionnaire happened during the community meetings. Questions can emerge from the community and be augmented by additional ones that are suggested by professionals based on what others have done, or in reverse, but creating a process which engages communities to understand why a question is being asked is most important. Standardized questions ensure that all settlement data across the city can also later be compiled, aggregated, or compared with each other.

## **2.4 Settlement Survey: The Mapping**

The first step in the process of mapping in the survey is to locate the settlement and then carrying out the survey at both the settlement level and the household level. The process starts with an initial sketch map prepared according to community discussions. The first map marks the boundaries of the settlements and lists the amenities and services provided in or nearby the settlement. These sketch maps also showcase the linkages of the settlement with the immediate vicinity. In the event Google maps or their

counterpart satellite maps can be printed, services and mapping can be done by communities on the Google maps.

Recently, the use of GPS instruments or mobile phones with locational features can be used to map boundaries and are especially useful when settlements are mapped across a ward or city. However, the technology is an added feature and thus does not diminish the value of slum profiles.

Community leader can easily learn to use such devices to mark boundaries. The data collected here can be linked and displayed on Google Maps. Detailed maps allows for the base maps from satellite or aerial images to be readjusted or re-drawn in accordance with the data collected through ground surveys. This information captured through the process can be incorporated in Geographical Information System (GIS).

It is important to note that introducing technology in the beginning often overwhelms the community and tends to undermine the main focus of creating their ownership of

information and knowledge. It can distort the whole process of demonstrating the

### **Participatory Enumeration and Mapping**

#### **Technological Add-ons for the Surveys**

**GPS:** GPS (Global Positioning System) can be used to collect settlement level information. Each GPS satellite continuously transmits signals, which contain a wealth of information that can be received by GPS devices on the Earth. GPS devices record their location as a set of coordinates. Thus, someone holding a GPS in the middle of a city can record the longitude and latitude of their location by pressing a button on the device. The coordinates can be imported from the GPS device to GIS and saved as points on a map. GPS recorded information is then imported into Google Earth to view the data against a satellite image of the city.

**GIS:** There are different types of Geographic Information System softwares, but all are used to store, manage, represent data that is linked to a specific geographic location and most importantly, provides tools to analyze all this information. The Participatory Slum Mapping Project used Quantum GIS (QGIS), an open source programs available for free download from the internet.

collaboration of data and empowerment to produce important insights and knowledge for the community. At the same time it would be foolish to assume that slum dwellers cannot learn to use such devices either.

## **2.5 Filling out Settlement Survey Form**

Settlement survey forms are devised and filled with the help of the community. To document the details of the settlement, a detail questionnaire is prepared which captures the information about the settlement. A sample of the survey form can be referred to in the annexure. Some of the major questions that the survey form carries to document the information are as follows:

1. Geographical Information: Age, location, land ownership status, de-notified or notified slum etc.
2. Total number of structures: Residential, commercial, residential cum commercial
3. Water infrastructure in the settlement
4. Sanitation infrastructure in the settlement
5. Waste disposable and collection
6. Electricity infrastructure
7. Livelihood and transport
8. Social infrastructure
9. Community priorities
10. Any problems or issues faced by community

### **Participatory Enumeration and Mapping**

The survey forms are filled by the communities in their local language. The data collected through the surveys along with the support of professionals, the community leaders are able to understand the issues.

## **2.6 Community Meetings**

Regular community meetings allows for group discussions to collect data, to identify community leaders for follow up contact, and to build a relationship between the community leaders and whoever is facilitating the process. The community begins the process of identifying and reflecting on the immediate and longstanding problems facing them and also begins to consider possible sustainable solutions.

## **2.7 Data Entry and collation of information from several settlements**

The easiest way to analysis the data collected is to form Excel sheets from which it is possible to extrapolate simple percentage and aggregations. The data then can be examined through a more complicated software. By comparing the various lists of the different settlements, the communities can understand that the challenges which they are faced with are similar to those of other slum communities. For example, the data can show that the sanitation situation in most communities is nonexistent; or that most communities have faced at least two demolitions; or that most people living in slums walk to work.

The most vital information that a community can gain from correlating the data is discovering how many members of the community know whose land they are squatting on and whether they have any security.

### **Participatory Enumeration and Mapping**

## **2.8 Follow up visit**

### **1. For data collation in the settlement**

Communities are cynical about people who collect data but never come back. Creating conditions by which some members of each settlement gather to collate information and aggregate data helps in two ways. Firstly, they begin to see the process of collation and they form relationships with each other. Secondly, they develop trust with the people who go back to their settlements for data verifications and corrections.

### **2. For data reflections in small groups**

Data analysis includes sharing the information gathered from secondary data sources. Comparing what people know and collate to what the secondary data assumes is a valuable process to help the communities understand the basis on which the policy makers view their information. The analysis of the information often indicates the parameters by which it was viewed, used, and presented. The information should also be analyzed in terms of its impact on the youth, women, livelihoods, etc. since by acknowledging different subgroups needs; the community can develop multiple priorities.

### **3. City level meeting of all settlements**

Having city level meetings of all the slum settlements is not a process either slum communities or cities are familiar with and thus generally hesitate to explore this option. City level meetings are useful and generally begin with smaller groups meeting to share their conclusions with each other; then selected communities present the data to

outsiders; gradually, as the communities get confidence, they gather as a network and present the data to the city officials. For city officials, usually when the data is compared to what they have on file, it is realized that they only have half the slums listed.

City level meetings of all of the settlements are important and should be pursued. Even though such meetings are unique and unusual, it facilitates the potential for joint reflection and actions on deliverables that cities have to ensure to all citizens.

## **2.9 Challenges of this process and overcoming the obstacles**

It's important to see the information gathering as a process of engagement rather than as a product.

### **1. The challenges of Time frame**

Community processes require a more relaxed time frame than a professionally planned data collection schedule. This is especially necessary if the communities are not already organised or if they do not have past experience. The process of engagement, exploration, and of experiencing the power of information gathering and analysis needs time, and cannot be short circuited by short term quick data capturing process.

### **2. The challenges of quick singular gains**

Data collected to gain a single outcome, regardless of the urgency of the issue will not engage the communities and may sometimes lead to disappointment and disengagement; even though data collected to gain a single outcome will always lead to

some data collection which serves a singular need. The data collection should be seen as a learning process and a means for the community to learn about them as a people with an identity and as having collective challenges. While data collection itself cannot be expected to produce outcomes, the knowledge of what the community faces in comparison to other slum communities helps develop solidarity. As these collective identities develop it can lead to organisational capacity, advocacies and exploring other such possible activities.

### **3. The challenges too many quick expectations**

If the data is collected by professionals, then the community expects the professional to analysis the results and produce viable outputs. Often this may not be possible and if so, can lead to disengagement. A spirit of collective exploration should be encouraged where the professional also demonstrates readiness to explore the various avenues, making it a joint venture.

## Unit 3: Case Study

### 3.1 Case study I: Dharavi, Mumbai- Redevelopment

Dharavi, originally a fishing village at the turn of the 20<sup>th</sup> century, gradually developed into a settlement outside the city. The 20<sup>th</sup> century was a period of migration and some migrants naturally settled around the fishing village while others were forced to move there when their homes in the city were demolished. Dharavi was outside the Mumbai city limit still 1956 but today, Dharavi is a town in the midst of Mumbai. It is known as one of Asia's largest slums and houses diverse multilingual, ethnic, and religious groups representing the cosmopolitanism that is the character of Mumbai. Spread over 525 acres, Dharavi has a population of over 500,000 people with small businesses who manufacture garments, leather goods, foods, and pottery, in addition to running a flourishing and unique recycling business. The total (and largely informal) turnover is estimated to be between US\$500 million and over US\$650 million per year.

In 1985, under the Prime Ministers Grant Project (PMGP) Prime Minister Rajiv Gandhi allocated Rs. 100 corers to develop Mumbai, out of which 37 cores was specifically for the development of Dharavi. In 1986-87 some of the community leaders of Dharavi approached the alliance to request them to look into what the PMGP was planning for Dharavi. The slum dwellers had received a pamphlet from the government simply stating that Dharavi is comprised of 50,000 people of whom approximately 15,000 would have to leave Dharavi to accommodate improvements to the infrastructure and amenities. The industrial character of Dharavi was not acknowledged into the equation. At the time the collector commenced a survey of Dharavi, but only counted the

#### **Participatory Enumeration and Mapping**

"recognized" households that were paying dues to the government. The government dues were termed rent but were actually a fine for having squatted on state land. The NSDF, in collaboration with a large number of community leaders drawn from different wards or settlements, compiled a settlement profile in four months, approximately the same time as the collector. The profile included a map of all the nagars in Dharavi and their profiles. The data showed that there were 83,000 structures in which had 1, 20,000 people lived. In addition, a list was prepared of the range of businesses in Dharavi with their daily and annual turnover, demonstrating the value of their businesses. The profile also documented the Pongal Houses, which is a Tamil nomenclature for hostels which accommodated over 50,000 migrant population and over the 5, 00,000 residents another 1, 00,000 who came in every day and left in the evening.

Two organizations were established as a result of this process; one was an association of the residents of Dharavi; another was the association of the businesses of Dharavi. Both challenged the state plans, which would destroy both their homes and their businesses.

For almost a year after the official and community data figures were published, the data was contested. Finally, the state conceded that by not surveying everyone, the data collected by the state for planning was insufficient. Eventually, the data collected by the community was quoted more often than the collector's data.

### **Participatory Enumeration and Mapping**

Some of the changes that eventually occurred in Dharavi were as follows:

- Improvement to some roads and the infrastructure
- Some buildings were built
- The leather industry that cured leather were relocated - the businesses adapted and veered towards leather manufacturing

Again in 2004 plan for redevelopment was announced by the government at which time the resident's networks were better prepared to resist the gentrification. The community is continuing to delay any intervention which does not fulfill their aspirations.

### **3.2 Case study II: Slum Mapping Project- Cuttack, Orissa**

SPARC, in collaboration with Mahila Milan and NSDF, assisted the slum dwellers of Cuttack and Urban and Development Resource Centre, Bhubaneswar (as the local anchoring agency) to conduct community led slum mapping project. The project was part of the Global Land Tool Network of UNHABITAT initiative to develop slum profiling at a city level to empower the communities to discuss with the city about the land on which their slums were settled.

The Mahila Milan in Odisha interacted with the community to initiate the process of mapping. Settlement Survey Forms were filled in consultation with the community to prepare a draft slum profile. The information collected pertained to the nature of ownership of land, access to basic services, demographic division, infrastructural provision, natural risks faced by the community etc. The slum profiles developed by NSDF and Mahila Milan were shared with the local federation leaders.

#### **Participatory Enumeration and Mapping**

The community learned how to map slum boundaries with a GPS enabled devices. Community leaders formed teams to map the boundaries and a separate group to discuss, to fill out the profiles, to highlight the amenities and to listen to the challenges faced by the families in the community. The settlement boundary, upload with GPS points on to the computers, along with the slum survey information was shared with the entire community.

The Mahila Milan successfully interacted with the local community and structured the community where no organization existed. Further, the community was also able to analyse and understand their requirements and prioritize their needs.

Later, in a meeting with the municipality, this data was shared with the city who acknowledged that their slum register only listed half of the slums.

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