

Citywide Slum Rehabilitation Strategies

Kolhapur, Maharashtra



A Toolkit for Social Housing

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LIST OF ABBREVIATIONS

AHP	Affordable Housing In Partnership
AWO	Administrative Ward Office
BLC	Beneficiary Led Construction
CSN	City Survey Number
CSO	City Survey Office
CLS	Credit Linked Subsidy
DG	Diesel Generator
DP	Development Plan
EWS	Economically Weaker Section
FGD	Focus Group Discussion
GIS	Geographic Information System
GOI	Government of India
IHSDP	Integrated Housing and Slum Development Programme
ISSR	In-Situ Slum Rehabilitation
LER	Local Elected Representative
LIG	Lower Income Group
MHADA	Maharashtra Housing and Area Development Authority
MIG	Middle Income Group
MoU	Memorandum of Understanding
OHOT	One Home, One Toilet
PMAY	Pradhan Mantri Awas Yojana
P-SP	Public Semi Public (Type of reservation)
SA	Shelter Associates
TP	Town Planning
ULB	Urban Local Body
URI	Unique Reference Identity

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PART A - CITYWIDE DATABASE

Creating Spatial Data

1. Introduction

Spatial information is the foundation for all of Shelter Associates (SA) projects. Spatial information is prepared by associating the dataset for an informal settlement with its precise location, using a Geographic Information Systems (GIS) platform, and by federating the datasets of multiple informal settlements across an urban area. This gives the collected data spatial parameters that enable queries to be generated at various scales: (1) the whole urban area; (2) the electoral ward; (3) the administrative ward; (4) the informal settlement.

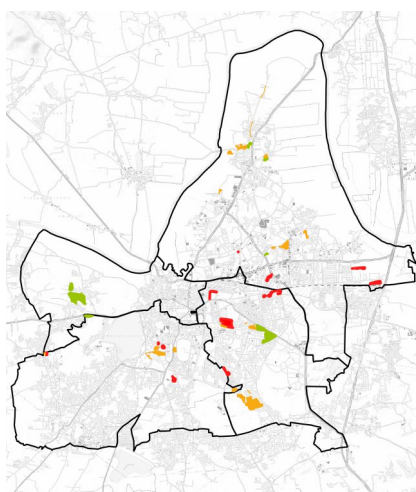


Figure A1: Citywide slum location in Kolhapur

Socio-economic data at household level, along with settlement level data, is required to be collected for the design and implementation of housing projects. The socio-economic surveys gather information on the families within an informal settlement and the settlement level survey gathers information that relates to the physical attributes and condition of the informal settlement, such as topography, land use, ownership, dwelling density to name a few, and the policy context, such as development plan reservations.

SA generates a city wide database with the purpose of identifying informal settlements which are most vulnerable. SA asserts that the spatial organisation of data is a prerequisite for planning sensitive and appropriate projects as it has been observed that a lack of real time accurate and granular data has limited the efficacy, and hampered the implementation stage of many rehabilitation strategies. As the data on informal settlement held by the local departments can be often outdated, untraceable and not easily usable, the collection of accurate data is a critical component for both the planning and the implementation of slum rehabilitation projects.

2. Objectives

With the help of this toolkit the user will be equipped with a checklist that establishes a thorough citywide database.

PART A - CITYWIDE DATABASE

Creating Spatial Data

At the end of this section the reader would understand:

- i. The prerequisites and key concepts for data collection including a desktop assessment prior to visiting the informal settlement.
- ii. Surveying dwellings and assigning Unique Reference Identities (URI) to dwellings within informal settlements.
- iii. Surveying physical structures and infrastructure within informal settlements.
- iv. Surveying families within the local community, including how to undertake the same with the use of open source android based data collection tools such as KoBoCollect and Avni (refer to SA OHOT toolkit 'Chapter 1 Creating Spatial Data' for details of KoboCollect).
- v. Integrating data with a QGIS platform and generating outputs for the settlement in the form of maps.
- vi. Federating the data from the individual settlement into a citywide dataset. In order to gather accurate spatial data SA uses the remote sensing imagery available via Google Earth to coordinate all the GIS data that is collected in informal settlements across urban/peri-urban areas. This enables a citywide perspective that can inform the rehabilitation interventions.

NOTE: SA uses Google Earth as it is the most accessible remote sensing, with reasonable resolution imagery, which is available free of cost to any potential project partners, such as NGOs, People from communities, a Local Elected Representative (LER) or an Administrative Ward Office (AWO) office.

3. Prerequisites and key concepts for data collection

At the end of this section the reader would understand:

- i. List of potential informal settlements. This list should be generated in collaboration with the AWO.
- ii. A desktop assessment prior to visiting the settlement.
- iii. A map of each settlement including the site boundary. The map could be a soft or a hard copy provided by the AWO, or a Google Earth aerial photograph.
- iv. Mobile phone/ Tabs/ any other device with the data collection tool to input data on infrastructure mapping at settlement level and household level.
- v. The data required for generating citywide information is to be collected from on-ground site visits, coordination with different departments within the Urban Local Body (ULB) and the residents of the settlement.
- vi. It is of critical importance that data collection is carried out methodically to ensure outputs that accurately represent the physical reality of the neighbourhood.
- vii. The entire extent of the settlement is required to be included while surveying physical structures and infrastructure.
- viii. Familiarise yourself with the layout of the settlement, the surroundings, and any indicated landmarks. This is of critical importance as it will enable you to orient yourself when within the informal settlement. Visiting a vantage point where you can see the whole of the informal settlement could assist your understanding of the layout and help to prepare for the task. Terraces of tall buildings and nearby hills could be useful to gain this perspective.

PART A - CITYWIDE DATABASE

Creating Spatial Data

4. Surveying dwellings and assigning URIs

- i. Dwellings (refer to SA OHOT toolkit 'Chapter 1 Creating Spatial Data' for details).
- ii. Assigning Unique Reference Identity (URI): This work stage includes surveying all existing physical structures, features/amenities against the information held by the AWO, and assigning a URI to structures within the informal settlement.
- iii. Assigning URI's is a very important step in mapping as all data collected for the slum and individual dwellings will be linked to the URI's. SA has developed a method for assigning URI's to suit the specific requirement of the OHOT initiative (refer to SA OHOT toolkit 'Chapter 1 Creating Spatial Data' for details).

5. Surveying physical structures & infrastructure within & around the informal settlements



- i. **Road Networks**
 - The network of roads, lanes, pathways (including their widths) within the informal settlement should be recorded accurately on the map. Roads and lanes may have a varying width as a result of structures encroaching upon them.
- ii. **Sewage/Drainage Coverage**
 - Sewage and drainage mapping consists of identifying drainage inspection chambers, manhole chambers, and drainage lines.
 - The route, diameter, direction of flow, depth, and condition of the sewage and drainage lines are to be recorded. Similarly open and closed gutters are to be marked within the settlement.
- iii. **Solid Waste Management services**
 - Identify on the map the areas of open garbage dumping and whether ULB services of waste collection and segregation have reached the slum. This data can provide information of the site conditions, surroundings and the issues the residents have to face due to foul smell, unhygienic areas, flies, mosquitoes, etc.
 - Open garbage dumping sites within the settlement need to be marked.
- iv. **Open defecation**
 - Locate on map the various areas of open defecation within a slum.

PART A - CITYWIDE DATABASE

Creating Spatial Data

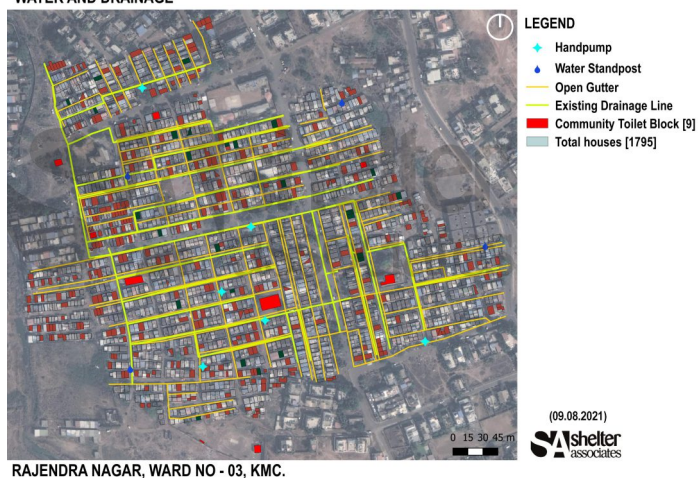
v. Electricity and Water Supply

- Collect data from AWO / ULB to gather slums that have been provided with electricity and water supply services.
- Undertake site visits to cross check the presence of water supply and electricity poles, Diesel Generator (DG) box, metre box within the boundary of settlement with rapid infrastructure mapping at individual dwelling level.

vi. Land Reservation (Proposed Land Use)

- According to the Development Plan (DP) areas of the city are reserved under Residential, Commercial, Industrial, Transportation, and Public/Semi-Public areas. In order to understand the reservation of the land occupied by the informal settlement, the digitised map of the settlement is superimposed on the DP map as a separate layer. This will help to mark the exact location of the settlement on the development plan and identify if the settlement is either partially or fully impacted by any reservations. Reference to figure pending.
- Since the DP is published at a scale to show the whole urban area it is unlikely to reflect the on ground situation accurately, the area under reservation must be confirmed with the ULB Town Planning department. Reference to figure pending
- Since the DP is adopted every 10 years, revisions in land use may not be reflected in the adopted DP. In some urban areas the surveyors may be in the process of updating the land use records and DP. Depending on the case the information on the DP should be verified.

WATER AND DRAINAGE



ELECTRICITY AND WASTE MANAGEMENT

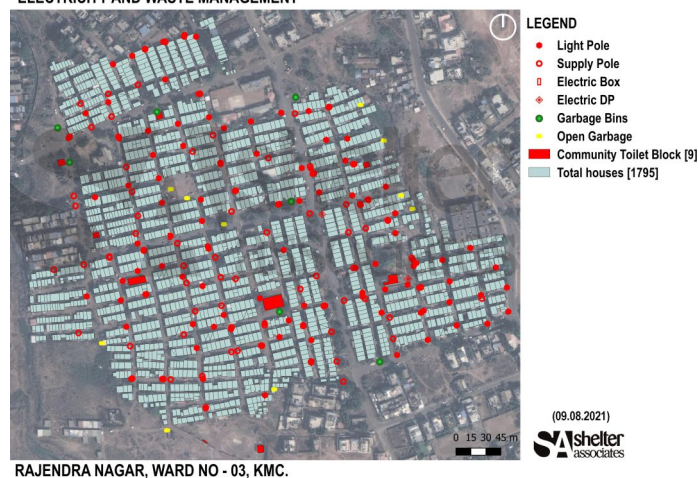


Figure A2: QGIS maps

PART A - CITYWIDE DATABASE

Creating Spatial Data

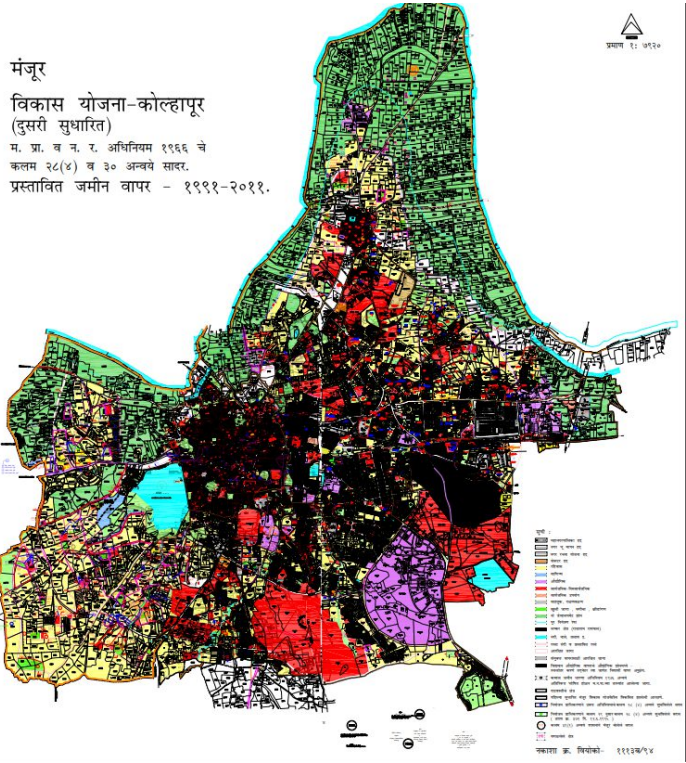


Figure A3: DP map



Figure A4: Rajendra Nagar dwellings overlapped on DP map

PART A - CITYWIDE DATABASE

Creating Spatial Data

vii. Neighbourhood Mapping

Analysis of the immediate neighbourhood provides an understanding of the locality. Land uses surrounding the informal settlement such as commercial, residential, transportation are identified and mapped to help understand the context. This provides information useful for developing housing proposals. During site visits ensure the following parameters are recorded:

1. **Water bodies** like rivers, lakes, streams, nullhas, artificial water storage areas, etc are marked on the maps. Also mark the flood prone zones, flood lines if any.
2. **Open spaces** on government land. This information should be treated as confidential information to prevent people unsupportive of a project from preventing the site being utilised as a transition site as part of a development.
3. **Transportation areas** such as bus stops, railway stations, airports.
4. **Cultural areas** such as multipurpose halls, amenity spaces, town halls, etc.
5. **Institutional areas** such as schools, colleges, etc.
6. **Healthcare facilities** such as maternity homes, hospitals, etc.
7. **Industrial areas** such as factories, small scale industries, etc.
8. **Commercial activities** such as shops, shopping malls, etc.
9. **Places of worship** such as temples, mosques, etc.



Figure A5: Neighbourhood Mapping

PART A - CITYWIDE DATABASE

Creating Spatial Data

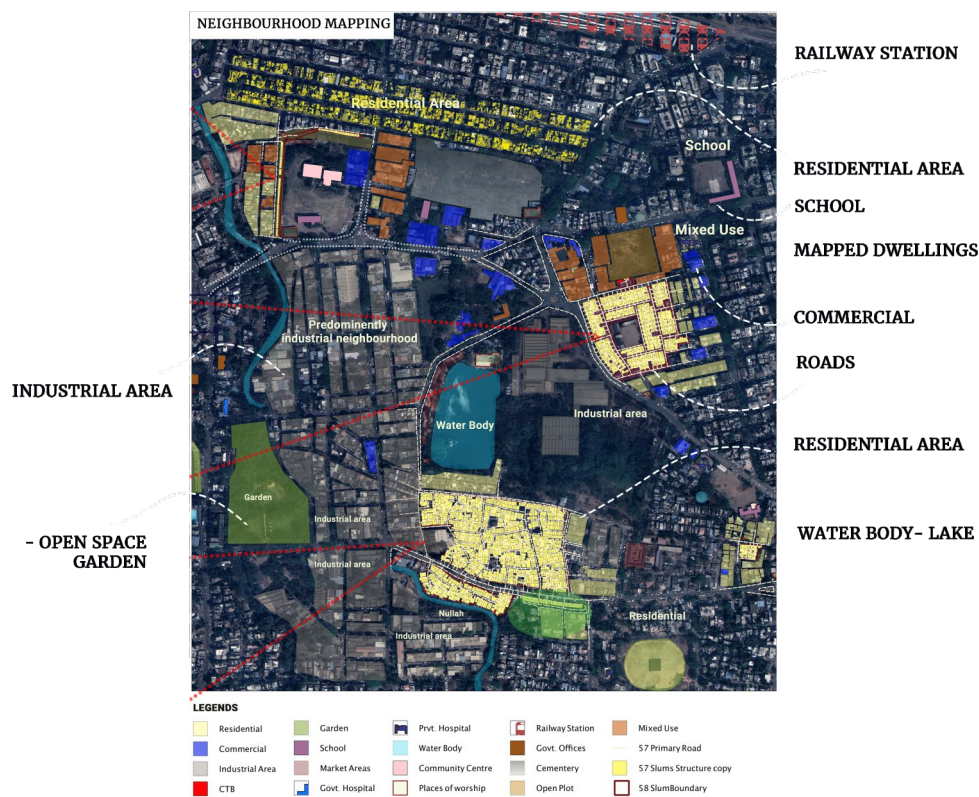


Figure A6: Neighbourhood Mapping

viii. Topographic Analysis

This analysis includes identifying the terrain of the informal settlement and is to be identified through site visits and mapping contours using available topographical information. This information is important to:

- Identify low lying areas prone to flooding and other non-buildable areas
- The direction and pitch of slopes required for planning the below ground drainage and water services.

NOTE: Depending on the size of the area under review either a contour map or a colour coded map (figure reference pending) could be appropriate.

PART A - CITYWIDE DATABASE

Creating Spatial Data

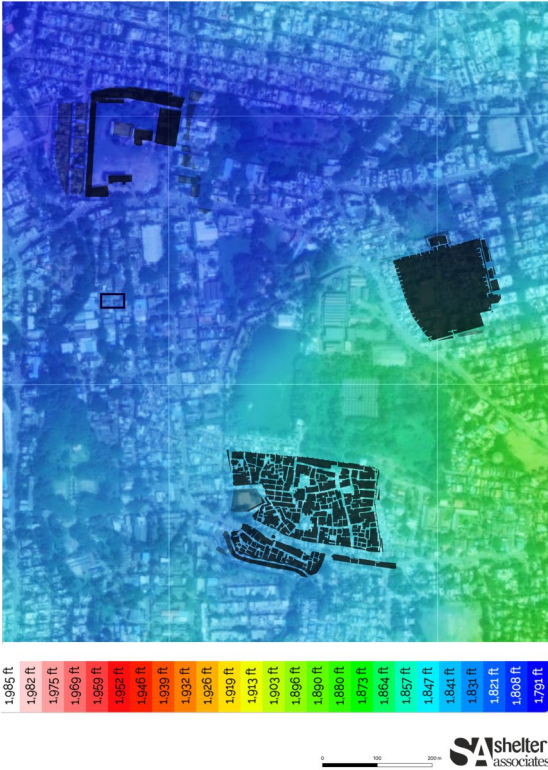


Figure A7: Topographic Map

ix. **Land Rates**

A ready reckoner for every city is available with the local governing body or the Town Planning department. Identify the area and locality of the slum and note the land rates of the region.

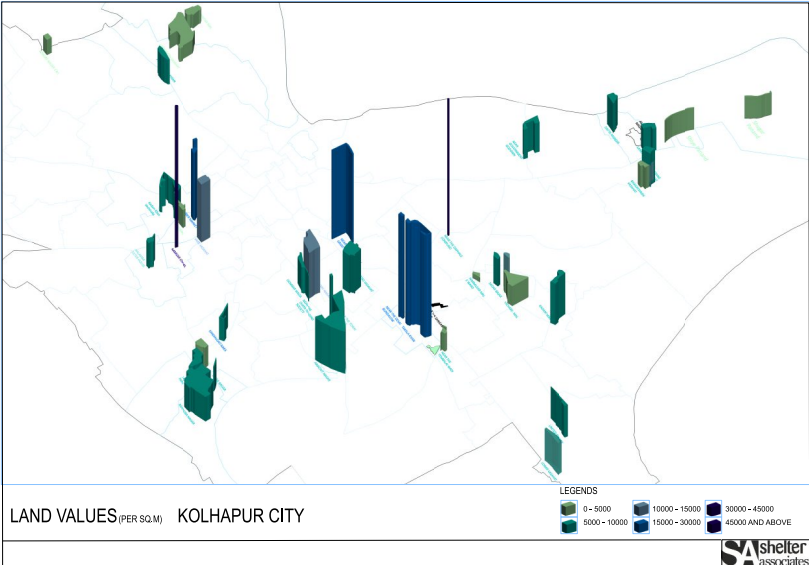


Figure A8: Land Rates

PART A - CITYWIDE DATABASE

Creating Spatial Data

x. **Dwelling Density**

Dwelling density is a measurement of the number of dwelling units per area (such as hectare). To calculate the dwelling densities the number of dwellings is divided by the area of the informal settlement.

Example:

Number of dwellings / area (in hectares) of informal settlement = dwelling per hectare
1,291 dwellings (d) / 4.42 hectares (h) = 292.08 d/h

NOTE: Shops, amenities, and other non-residential structures are excluded from the calculation.

6. Outputs and results

01

A remote sensing aerial image of the informal settlement is imported into the GIS platform. The aerial image is then traced to create a digitised layout of the existing settlement where all physical structures are shown. For clarity the line weight and colour for layers should be consistent across all settlement layouts.

02

The collected data is added to the digitised layout within the GIS platform to produce an accurate representation of the existing condition of the settlement where all infrastructure, open defecation sites, open dumping sites, land reservations, and land uses are indicated.

03

Using the GIS platform, spatial queries are prepared to translate the collected data into usable information. The graphic presentation style including symbols and colour codes should be standardised to minimise confusion and miscommunication.

04

Review the queries at a city-wide level to understand the percentage of settlements within different categories such as land ownership, land reservation, dwelling density, etc.

PART A - CITYWIDE DATABASE

Creating Spatial Data

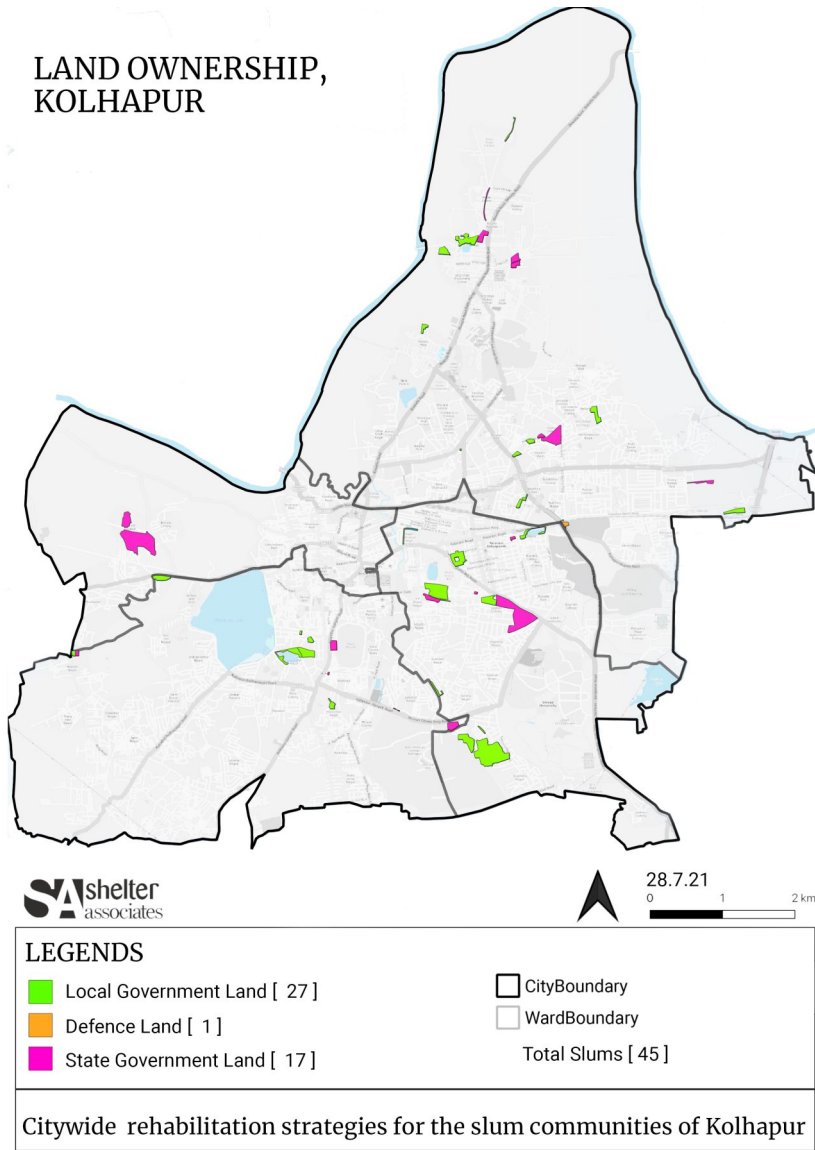


Figure A9: Land Ownership Spatial Representation

PART A - CITYWIDE DATABASE

Socio Economic Survey and Data collection

1. Introduction

The socio-economic survey for each slum aims to gauge data on slum demographics such as family size, occupation, financial condition (such as income, expenditure, and loans), tenancy arrangement, plot ownership, proof of land ownership, willingness to participate in a housing programme.

The socio-economic survey also collects data on the:

- i. Existing condition of the house such as dwelling area, construction type, essential services connections, availability of natural light and natural ventilation, heat gain, water ingress, frequency of repair and renovation work, etc.
- ii. Existing conditions such as presence of mosquitoes/flies, foul smells, open dumping areas, open gutters, etc.

2. Prerequisites and key concepts for data collection

- i. A map of each settlement including the site boundary. The map could be a soft or a hard copy provided by the AWO, or a Google Earth aerial photograph.
- ii. Mobile phone/ Tabs/ any other device with the data collection tool to input data on infrastructure mapping at settlement level and household level.
- iii. Letter of consent from AWO permitting the implementing agency to conduct a survey of the residents of the informal settlement.
- iv. It is of critical importance that data collection is carried out methodically to ensure outputs that accurately represent the physical reality of the neighbourhood.
- v. Familiarise yourself with the layout of the settlement, the surroundings, and any indicated landmarks. This is of critical importance as it will enable you to orient yourself when within the informal settlement.

NOTE: The household level information will be linked to the dwelling as marked on the map. Any discrepancies in association between the data collected and the dwellings from which it was collected can result in inaccurate representation that will hamper the project.

3. Equipment

- i. A map of the informal settlement.
- ii. Survey form (see appendix A).
- iii. Mobile phone/ Tabs/ any other device with the data collection tool (such as KoboCollect app).
- iv. Letter of consent from AWO permitting the implementing agency to conduct a survey of the residents of the informal settlement.
- v. Proof of identification of the surveyor.

PART A - CITYWIDE DATABASE

Socio Economic Survey and Data collection

4. Method

Brief the members of the team of pertinent points regarding the survey:

- i. The slum is divided into sectors depending on the size and each sector is assigned to a surveyor/group of surveyors.
- ii. The surveyor/group of surveyors review their sector to plan a route that ensures all dwellings are included in the survey.
- iii. The surveyors walk the pre-planned route through their assigned sector surveying a representative of each family.

NOTE: - The surveyors should be aware that some questions may be considered to be sensitive and the participants have the right to not answer. Surveyors should never force participants to answer a question.

- The surveyors should be conscious of time. Surveyors should not needlessly delay the potential beneficiary from their duties.
- The surveyors should not lead the participant with their answers.
- Once the data has been collected the surveyors cross check the household level data with the mapped data. This helps to spot mistakes in the collected data. For example if the number of surveyed families totals 300 but there are only 299 families identified during the physical structures and infrastructure survey then the error can be identified and resolved.

5. Risks

- i. Extreme care must be taken when conducting this task as it is a critical activity which must be carried out methodically as it provides the raw data for the information about the local community and therefore has a significant influence on the result of all subsequent stages of the project.
- ii. To ensure that the data reflects the condition of the slum at least 80% of the families should be surveyed. In the case of locked dwellings, surveyors should undertake another round of surveying to ensure the maximum number of families are included within the survey.
- iii. People may provide false responses to survey questions, especially in relation to sensitive subjects such as financial details. To mitigate the risk of false data:
 - The survey questionnaire should be set up so that multiple questions per topic are asked to ensure greater accuracy of the information received.
 - The surveyors should cross check responses to questions with a visual assessment of the condition of the house or assets available during the survey.
- iv. Technological challenges:
 - Proper training for data collectors/ surveyors
 - Choosing the right application for the type of data collected as softwares might have their limitations
 - Manual entries need to be carefully recorded.

PART A - CITYWIDE DATABASE

Socio Economic Survey and Data collection

6. Spatial Outputs

Once the data is collected it is connected with that map using a GIS platform to produce the various spatial outputs. However prior to connecting the data, the data must be reviewed to ensure that there are no issues that will generate errors in the GIS platform. Free text cells are required to be reviewed to ensure that consistency of language is maintained across all entries and blank cells are required to be filled in to ensure that all questions are answered.

The spatial outputs display the emerging trends and patterns that inform the development of proposals (refer to appendix B).

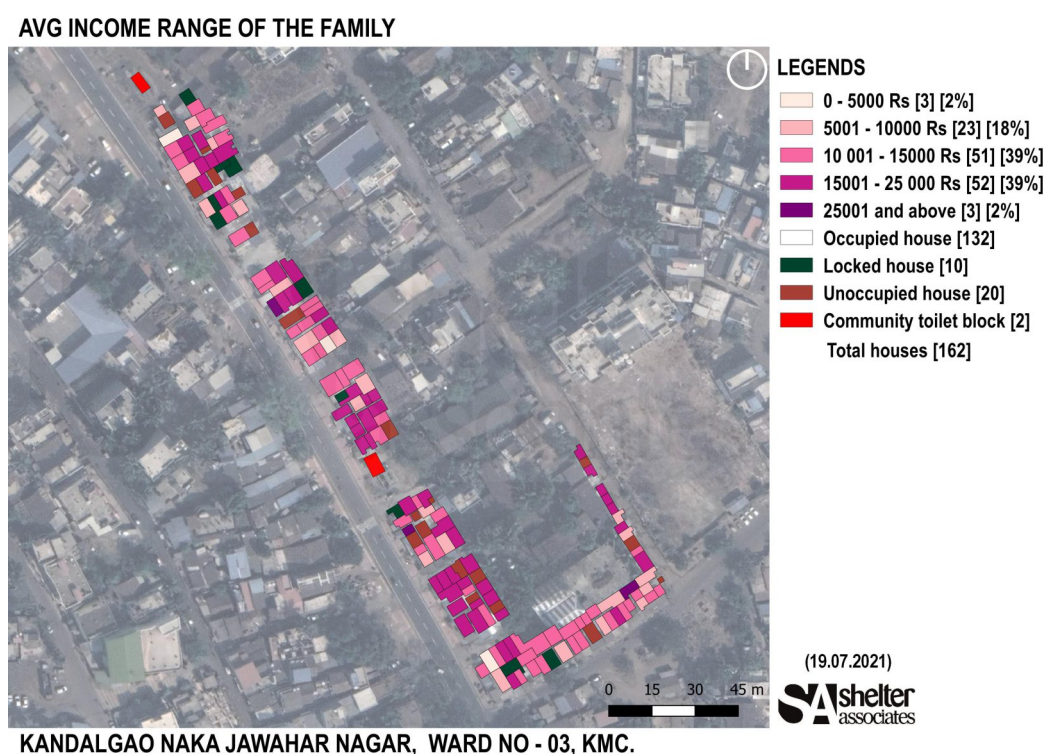


Figure A10: Spatial Output for income group

7. Individual Slum Report

Once the data has been connected with the map using a GIS platform, and the various spatial outputs have been generated, an individual slum report is prepared presenting all of the collected data along with an analysis of the information collected. The individual slum report concludes with a summary section which describes the slum in relation to categories that give an overview of the slums vulnerability.

The individual slum report is used as a point of reference to inform the solutions for possible housing schemes.

PART B - VULNERABILITY INDEX

1. Introduction

The information generated in part A is analysed for the purpose of creating a vulnerability matrix of the surveyed slums. The vulnerability matrix is prepared by placing settlements in rows and parameters pertinent to vulnerability (the parameter list is explained in detail below) in columns. Within this matrix scores of 1 to 4 are awarded to each category for each settlement. The total of all the scores then provides a final vulnerability score.

A score of 1 to 4 is awarded as this is an even number and prevents people from selecting the middle number. For each category the range of answers is to be divided into four slabs and awarded a score from the 1-4 range. The score 1 indicates least vulnerability while the score 4 indicates highest vulnerability.

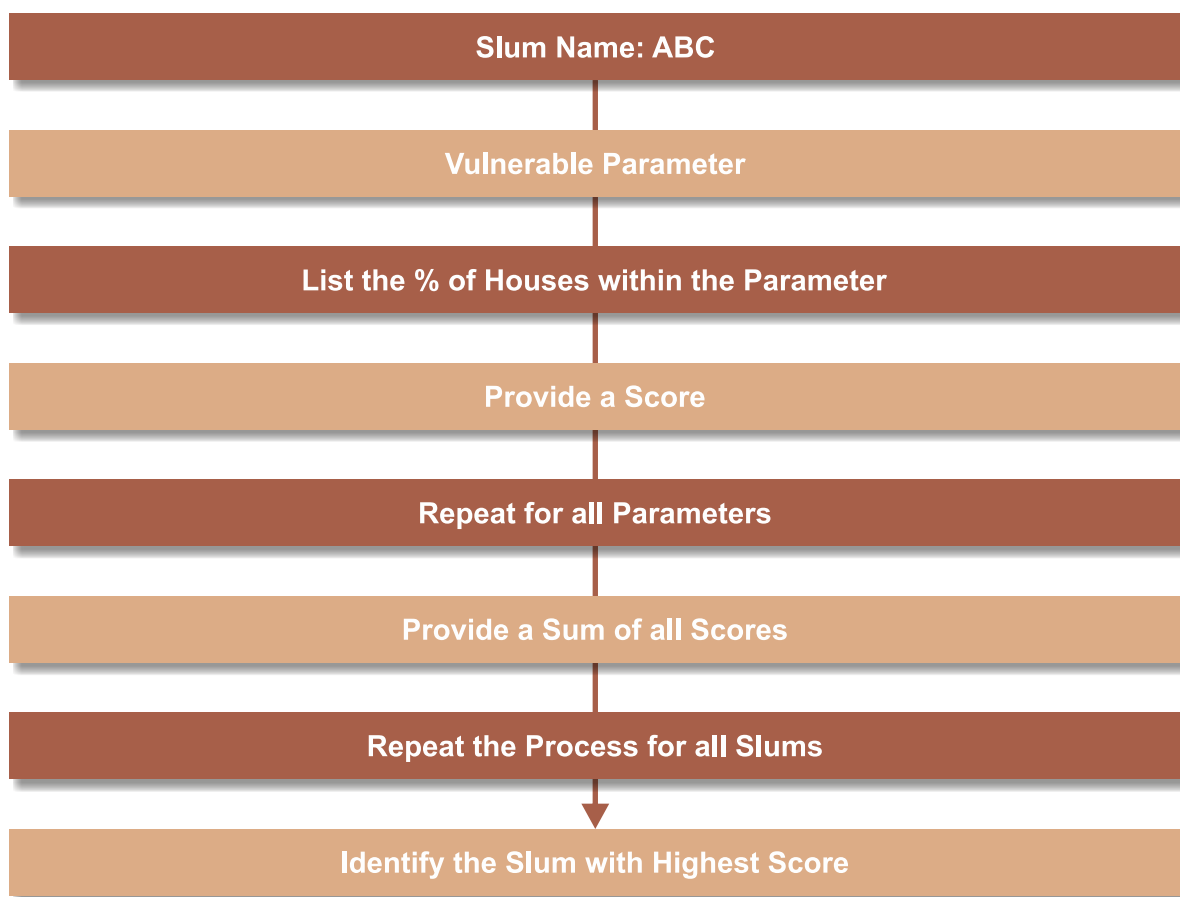


Figure B1: Vulnerability Index

PART B - VULNERABILITY INDEX

2. Parameters - pertinent to vulnerability and their ratings

i. Land Ownership and Land Reservation:

The ownership and reservation of the informal settlement determine if the settlement is: (1) Tenable (least vulnerable), (2) Partly Untenable, (4) Untenable (most vulnerable).

Slums on Public, Semi-Public reservation, transportation land, industrial areas, open space or No Development Zone, and slums affected by proposed road reservations are partly or completely untenable.

Ownership	Reservation	Tenable/ Untenable	Score
State Government (Tenable)	Residential (Tenable)	Tenable	1
Local Government (Tenable)	Part Residential (Partly Tenable)	Partly Tenable	2
	Any other (Untenable)	Untenable	4
Government of India (GOI) Land (like Defence, Railway, Forest Dept. etc) (Untenable)		Untenable	4

Table 1: Land Ownership and Land Reservation

ii. Based on Dwelling Densities:

A mid-rise high density development consists of a 3 storey construction. The maximum dwelling density for such construction in tier 2 cities is considered to be 350d/ha. Slums with lower dwelling density are least vulnerable.

Dwelling Density	Score
0-150 d/ha	1
150-250 d/ha	2
250-350 d/ha	3
350-above d/ha	4

Table 2: Dwelling Density

PART B - VULNERABILITY INDEX

iii. Based on the topographic challenges:

Depending on the percentage of dwellings affected by topographic challenges, input the score. The greater the number of dwellings affected by topographic challenges, the greater is the vulnerability.

Percent of houses suffering from flooding	Score
0-15	1
15-30	2
30-45	3
45 above	4

Table 3: Based on the topographic challenges

iv. Based on the Structural Conditions:

Depending on the percentage of dwellings that: (1) are made of kutcha materials; (2) have been upgraded within the previous two years; and (3) average area per person, input the score. The greater the percentage of kutcha/semi-pucca houses, the greater the vulnerability.

Percent of Kutcha/ Semi-pucca houses	Score
0-15	1
15-30	2
30-45	3
45 above	4

Table 4: Based on structural conditions

PART B - VULNERABILITY INDEX

Average Area per person below - 50 SqFt below	Score
0-15	1
15-30	2
30-45	3
45 above	4

Table 4.1: Based on average area

v. Based on the Socio-economic Conditions:

Depending on the percentage of families with: (1) members over 60 years of age; (2) physically and/or mentally challenged members; (3) a total family income below Rs.5,000; (4) a loan corresponding to the families income; and (5) families occupying their dwelling as tenants, input the score. The greater the percentage of families, the greater is the vulnerability.

Percent of people within the household over the age of 60	Score
0-15	1
15-30	2
30-45	3
45 above	4

Table 5 Based on socio-economic conditions

Percent of physically and/or mentally challenged people within the household	Score
0-15	1
15-30	2
30-45	3
45 above	4

Table 5.1 Based on physically/mentally challenged

PART B - VULNERABILITY INDEX

Percent of households with a total income below Rs.5,000	Score
0-15	1
15-30	2
30-45	3
45 above	4

Table 5.2 Based on income

Percent of households that have taken a loan	Score
0-15	1
15-30	2
30-45	3
45 above	4

Table 5.3 Based on loan

Percent of households as Tenant	Score
0-15	1
15-30	2
30-45	3
45 above	4

Table 5.4 Based on house ownership

3. Comparative analysis leading to identification of vulnerable slums

The scores for each individual category are totalled giving a vulnerability score for the slum. The slums are then ranked from highest to lowest vulnerability score to produce the city wide vulnerability index.

NOTE: The data collected is to be related to the on-ground condition of the specific urban area; the parameters that dictate vulnerability could change from urban area to urban area.

PART C - WAY FORWARD | OUTPUTS

1. Using the vulnerability index

Once the slums are organised into the vulnerability matrix you can start to develop a strategy to identify the most vulnerable slums. The list of slums can be grouped into ranges classifying their vulnerability category: (1) most vulnerable; (2) vulnerable; and (3) least vulnerable. The vulnerability matrix enables the available resources to be prioritised on the most vulnerable slums and projects planned around the most vulnerable slums.

2. Planning projects

At the end of vulnerability analysis, the slums identified are to be taken forward for design development. The on-ground condition will decide the way forward. There are three ways one can redevelop a slum :

i. **In-situ Rehabilitation:**

In case of a tenable high density slum with no possibility of any extra housing stock then the slum is to be considered for in-situ rehabilitation.

Complete redevelopment: SA advocates for a complete redevelopment project as it ensures equitable distribution and judicious use of land to ensure holistic development.

Part redevelopment: However in cases where the slum cannot be completely rehabilitated due to multiple reasons such as issues with land ownership, land reservation, etc then part redevelopment is to be proposed.

ii. **Relocation to an open plot:**

In the case where slums are untenable, due to factors such as reservation, topographic challenges, etc., and where there is no receiving pocket or an alternative plot reserved for slum rehabilitation, then the slum is to be relocated to the open land.

iii. **Creating extra housing stock / relocation of untenable slums:**

If the dwelling density is lower than 350 d/h then the slum has the potential to accommodate additional dwellings. Extra housing stock upto 400-450d/h (see note below) can be generated thus making the slums receiving pockets for other untenable slums.

Through rapid design development following town planning norms calculate the additional dwellings that can be accommodated. Depending on the neighbourhood analysis within the clusters, identify untenable slums that are within 2-2.5 km of tenable slums.

NOTE: Rapid design development involved conduction design options for a selected slum to understand the extent of housing stock that can be accommodated

NOTE: As per our rapid design development we consider 400-450d/h as optimum housing stock for a mid-rise high density development in a tier 2 city.

PART C - WAY FORWARD | OUTPUTS

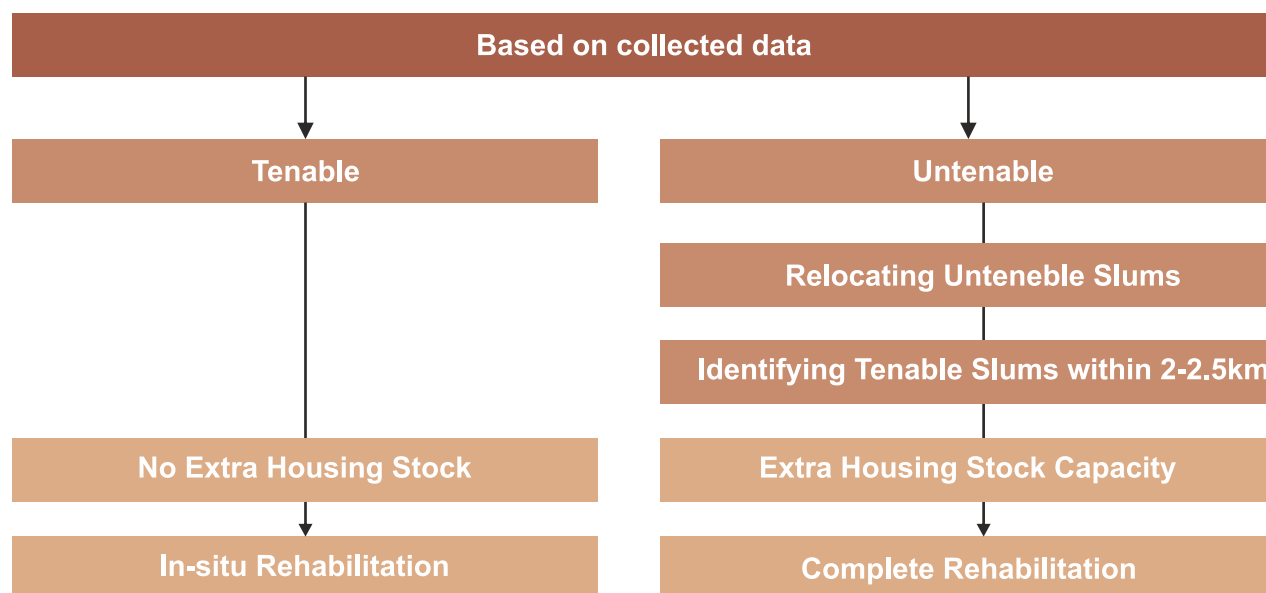


Figure C1: Vulnerability Index

3. The importance of the 2-2.5km distance for the relocation of untenable slums

It is observed from our survey data and observations that residents have a mobility range of wherein all required facilities are available within 2-2.5 km be it their social requirements, places of worship, place of education, place of occupation or healthcare facilities. In order to ensure that their lifestyle is not disrupted by relocating residents of vulnerable slums on untenable land to locations where their required facilities are not available, relocation strategies are limited to 2-2.5 km.

Tenable slums within 2-2.5 km of the vulnerable slums on untenable land are identified as potential receiving pockets and feasibility studies are conducted of each potential receiving pocket to determine maximum housing capacity. In instances where no tenable slums with extra house potential are within 2-2.5 km, open spaces should be considered as potential receiving pockets for a housing project.

This information is presented on a citywide plan to enable housing relocation strategies to be formulated where the residents of vulnerable slums on untenable land are accommodated on tenable slums, within 2-2.5 km, where proposed housing projects can be implemented.

PART C - WAY FORWARD | OUTPUTS



Figure C2: 2km radius around Kandalgao

SA worked with the 176 flood-affected families of Kamgar Putala to help them secure formal housing away from the flood-prone banks of the river. The people were ready to move 8km away from their current place of residence after carrying out due diligence of neighbouring areas such as livelihood opportunities, educational facilities, social amenities like marketplaces, etc.

Anecdote from Sangli-Miraj. SA worked with families in Sangli-Miraj and the beneficiaries living on the outskirts of the peri-urban area were willing to relocate 4 km as this would move them into the city.

If the community is in approval of relocating more than 2-2.5 km, then these relocations can be considered accordingly.

**Anecdote of
Kamgar Putala, Pune**

PART C - WAY FORWARD | OUTPUTS

4. Rapid design development

A rapid design development is undertaken for slums that have extra housing stock potential. In order to understand the exact number of dwellings that can be accommodated after creating the extra housing stock the design development needs to be carried out following certain guidelines such as:

- i. Marking the plot boundary of the slum and all roads border or passing through the plot.
- ii. Comply with all TP guidelines related to road widening, setback regulations, open space reservation, etc.
- iii. Identify all services, amenities, and infrastructure and associated access requirements.
- iv. Calculate the available buildable area for the design development.
- v. Calculate the requirements for vehicular parking and the accommodation of hand drawn carts and how much space can be accommodated within the layout.

NOTE : The plot boundary used for rapid design development is a tentative one and is to be utilised only to gauge the extent of housing that can be accommodated. It is of utmost importance to undertake exact plot demarcation (mojani) by concerned government officials for accurate demarcation of plot. (refer to Anecdote from Bondre Nagar)

5. Detailed Socio-Economic Survey

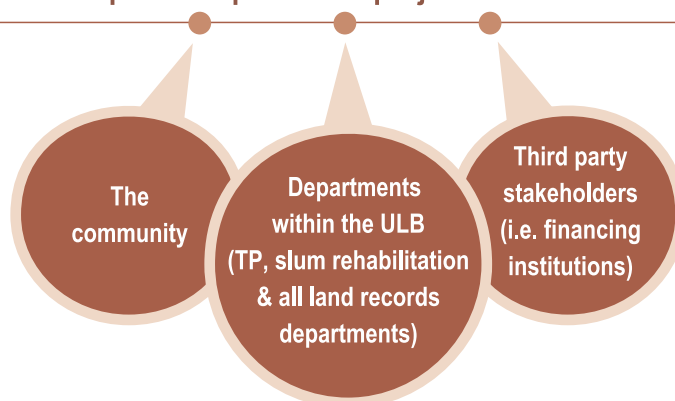
Detailed socio-economic survey is conducted using a data collection app such as Kobo collect to understand:

- i. The eligibility of residents within the settlements for various housing schemes, including documents available, house ownership outside the slum, etc.
- ii. The detailed financial conditions of all family members, average earning members, family incomes and loans taken for economic vulnerability to gauge loan eligibility, etc.
- iii. Survey form (see appendix A for reference)

6. Multi stakeholder approach

Developing a strategy with a multistakeholder, inclusive approach from the commencement of the project in order to produce viable solutions leads to sustainable impact.

From inception & initial concept development the project should involve all concerned stakeholders



During different stages the implementing agency can strategically engage with different stakeholders that play an important role to ensure that an inclusive approach is enabled.

PART C - WAY FORWARD | OUTPUTS

i. Implementing agency engagement with the communities and local elected representative (LER):

Community engagement should always be a central component of the planning process:

- Engagement session with the community in the form of focus group discussion (FGDs), workshops, and presentations of the data collected.
- Propose design solutions should be generated with community input.
- Presence of community representatives during discussions with the ULB, throughout the process is necessary for the effective implementation and sustainability of the projects.
- This approach ensures that balance between the needs of the community and the objectives of the ULB is achieved.

NOTE: The timing of engaging with the community needs to be carefully considered. It is necessary to have all necessary data and options for redevelopment before engaging with the community. Similarly the government and concerned stakeholders need to be aware of the on-ground situations in order to consider holistic solutions leading to optimum utilisation of land.

ii. Implementing agency engagement with the ULB:

ULB engagement is an important component of the process:

- To generate the necessary spatial data (see part A above).
- To verify data collected by the implementing agency.
- To verify the selection of project beneficiaries.
- To demarcate plot boundaries and other constraints that inform the design development (see 4. Above).
- To scrutinise, approve proposed site layouts, and grant all necessary permissions at required stages.
- To tender the project to prospective contractors during implementation.

Various departments within the ULB are listed below.

NOTE: Importance of an Memorandum of Understanding (MoU) if an external agency is implementing:

The MoU ensures that the local governing body is aware of the research undergoing in the city. An advantage of a MoU is that when any future social housing programmes are undertaken within the city, the officials will have a better understanding if they are involved in the project since inception. Once the scope of the project is identified the implementing agency should prepare an MoU with the ULB, clearly defining the roles of the agency and ULB for the expected outcomes from the project. The roles and responsibilities for the ULB are providing information, resolving issues related to data discrepancy, permission for undertaking surveys, and collecting household level data.

PART C - WAY FORWARD | OUTPUTS

iii. Social Housing Department such as Pradhan Mantri Awas Yojana (PMAY):

The department oversees projects in different categories of affordable housing like in-situ rehabilitation, affordable housing in public-private-partnership, etc. All applications are submitted to the department and are scrutinised before preparing a final detailed project proposal (if required), financial disbursement, monitoring, evaluation are overseen by the department. Information on the current housing schemes in the city, the process of beneficiary selection, financial, socio-economic criteria can be understood with discussions and interviews within the concerned officials.

NOTE: In tier 2 cities the urban local body will have a department that overlooks government housing schemes. In tier 2 cities like Kolhapur, schemes like the Ramai Awas Yojana and PMAY are implemented for the EWS, LIG, MIG, etc.

iv. Town Planning (TP) department:

The TP department in the city overlooks the preparation of the development plan (DP). Surveyors within the TP department undertake mapping and revisions within the DP as per changes in the existing land use. All land reservations as per the adopted DP are surveyed and mapped. The TP department updates land records, provides building permission for projects sanctioned in the city.

v. City Survey Office (CSO):

The CSO undertakes mapping and numbering of plots of land. The plots of land are numbered with a City Survey Number (CSN) and the ownership is clarified. All the necessary data regarding survey numbers, land ownership of individual plots on the land can be obtained through the CSO.

NOTE: The functions performed by the CSO may be performed by a department with a different name depending on the urban area.

vi. Land Survey Office / Mojani Office:

The Mojani Office is responsible for demarcating the exact plot boundary. Surveyors identify the boundary and provide an official map with the exact dimensions. The official map is issued once the Required land Ownership document and the survey Number is submitted to the Mojani Office.

NOTE: The functions performed by the Mojani Office may be performed by a department with a Different name depending on the urban area.

Anecdote from Bondre Nagar

An application was sent to the Mojani office, to mark the exact boundary of the plot. The map showed that the plot area has reduced due to road widening and changed plot boundary.

PART C - WAY FORWARD | OUTPUTS

Through our engagement with the government during different initiatives, we have discerned that tier 2 cities have less complex administrative structures. With urban population less than 10 Lakh and slum population at 10-15% of the total population, developing social housing schemes with a citywide/macro-level approach can benefit the city in well planned development.

Many tier 2 cities can lose out on the opportunity of holistic development due to haphazard planning which can lock prime government land.

Social housing schemes that have a myopic piecemeal approach result in projects being enforced on the people without taking into consideration their aspirations, needs, etc.

7. Risks

- i. Lack of coordination within different departments of the ULB.
- ii. Lack of data held by the ULB (CSO, Mojani Office, etc.)
- iii. Discrepancies within data held by the ULB (CSO, Mojani Office, etc.)
- iv. Reluctancy of the community to engage with the implementing agency.
- v. Lack of willingness by the LER.
- vi. Implementing agency has a different approach than what the ULB would prefer to deliver.

NOTE: All collected data needs to be correlated with development plan maps, town planning departments, city survey office, land records departments, collectors office, etc. to understand the onground situation and highlight any discrepancies in the records if any. Where non-conformities arise further analysis through interaction with all concerned stakeholders should be conducted.

PART C - CONCLUSION

SA envisages an India where every citizen has access to basic infrastructure, secure tenure, and recognition of equal rights. To achieve this vision, slum rehabilitation projects need to be implemented using a procurement process that is sensitive to the needs of all stakeholders, especially the project's beneficiaries.

This toolkit articulates the three core principles of sensitive planning:

The importance of a data driven process

The importance of a holistic approach at the citywide level

The importance of an inclusive approach

Slum data needs to be methodically collected, meticulously organised, and presented using a coordinating base map. This ensures that an accurate profile of the surveyed area, whether a city, a neighbourhood, or an individual slum, is generated. With an up-to-date and accurate profile valid theories of cause and effect can be composed where the cause would be the proposed intervention and the effect would be the desired outcome to provide security of tenure. Slum data held by the ULB is often inaccurate and out of date leading to slum rehabilitation projects that fall short of their desired impact. This toolkit demonstrates the process of data collection, data organisation, and data analysis to create usable information that can be leveraged to make informed decisions in planning slum rehabilitation projects.

As slum data may be held in various departments within the ULB making it difficult to take a holistic view of the entire urban area. This can lead to piecemeal slum rehabilitation projects which represent a suboptimal use of the limited resources, such as tenable land, and fail to leverage an economy of scale. It can also lead to ULB hesitancy in undertaking a holistic approach to slum redevelopment due to complexities and conflicts that may arise when planning such projects.

This toolkit demonstrates the process of federating the data collected on a unifying basemap leading to a citywide dataset which informs the preparation of a vision for slum rehabilitation across the urban area.

Slum rehabilitation projects should be implemented with a balance of the top-down and the bottom-up approach; facilitators of slum rehabilitation projects should be working at all scales concurrently to adopt an informed and neutral position. Slum rehabilitation projects are often implemented according to a top-down methodology where projects are conceived from a remote position without any understanding of the context within which they are situated. A top-down approach to slum rehabilitation is ineffective as the beneficiaries opinions are not taken into account and the insensitivity of the process distorts the output and jeopardises the impact.

This toolkit demonstrates the process of inclusive planning where the implementing agency acts as a mediator between the ULB and the beneficiaries to facilitate impactful projects where the interests of the stakeholders have been balanced.

APPENDIX

Socio Economic Survey Questionnaire:

Understanding the spatial and social structure :

- 3.1.1 Number of family members
- 3.1.2 Number of Male/Female/third gender members in the household
- 3.1.3 Physical/other disability of any member
- 3.1.4 Input the number of family members in the following categories :
 - Below 5
 - 5-18
 - 18-45
 - 45-60
 - 60 above
- 3.1.5 Select to indicate if the family has any female members below 18 years of age
- 3.1.6 If the family does have any female members below 18 years of age input their age(s)
- 3.1.7 Area of the family's dwelling. The area can be measured with a tape measure or could be estimated by counting floor tiles of a known area
- 3.1.8 Degree of education received (Information about person with highest qualification)
- 3.1.9 Primary occupation :

Select to indicate if any members of the family have construction skills. The aim of this question is to identify members of the local community who have skills in the construction sector such as masons, plumbers or construction labour which could be useful during rehabilitation
- 3.1.10 Daily travelling distance for work
- 3.1.11 Daily means of transport
- 3.1.12 What is the type of vehicle you own?
- 3.1.13 Assets in your house
- 3.1.14 Do you own any Livestock?
- 3.1.15 What type of cooking fuel do you use?

Infrastructure Condition of the family :

- 3.1.16 Type of the structure of the house
- 3.1.17 Ownership status of the house / shop
- 3.1.18 For how many years have you been living in this house?
- 3.1.19 Whether your owner stays in the same settlement or outside the settlement
- 3.1.20 Do you think you receive adequate natural sunlight during the day ?
- 3.1.21 Do you need lights during the day?
- 3.1.22 Do you suffer through extreme heat during summers?
- 3.1.23 Is there good ventilation in your house?
- 3.1.24 Do you have any problems due to leakage/mould in the rain?
- 3.1.25 Do you have any problems due to (multiselect)
- 3.1.26 How many times do you have to carry out repair and renovation work in the house ?
- 3.1.27 Have you undertaken complete upgradation of your house in the last 2 years ?
- 3.1.28 Do you have a Property card?
- 3.1.29 Have you engaged in any housing schemes in the past ?
- 3.1.30 Would you like to engage in a housing programme ?

APPENDIX

Socio Economic Survey Questionnaire:

3.2 Financial Structure of the family :

- 3.2.1 Avg income range of the family
- 3.2.2 Number of earning members in the family
- 3.2.3 Avg family expenditure
- 3.2.4 Is there a current loan availed
- 3.2.5 From where have you taken a loan?
- 3.2.6 Monthly repayment (enter Exact amount here)



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