

Formulation of Policy & strategies for slum development through Slum Permanent Record System with GIS as E-TOOL

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Abstract:

Modernization and urbanization has resulted in radical socio-economic changes in greater way in this process the “urban poor” who are real pillars of the economic progress of the country where excluded,. Bringing them to the main stream is the vision and mission.

At National level so far sector wise (Housing & Infrastructure, Education, Health, Social security and Employment) policies and strategies were developed considering fixed measuring parameters. In present case, integrated data bank for overall upliftman of slum/ urban poor is missing. At same time slum development priority was not on equitable analytic based. Moreover it was subjective decision by implementation authority. As an end result the assessment of resource such as financial, land and governance of need based demand is absent in present scenario.

With the objective that the benefit of any incentive percolates down below to the end user Slum Permanent Record System (SPRS) come in to being as a bridge between resource provider and end consumer. SPRS updates & collects data in hierarchy level and store with unique identification code (UID) with GIS interface for further drill down the quarries to resolve the issues.

The data having following chain of command

Name of Character	Representation code	UID data in SPRS profiler
INDIA	IN	
STATE OF INDIA	Census code of State	UID-1
DISTRICT	Census code of District	UID-2
CITY	Census code of City	UID-3
ZONE	Zone number of City	UID-4
WARD	Ward number of City	UID-5
SLUM	Slum Code	UID-6
ROAD NO	Slum Road	UID-7
H.H NO	Slum House hold plot	UID-8
FAMILY MEMBER NO	Slum House hold individual beneficiary	UID-9

E- Governing & E- Monitoring at Municipal level the flexibility to customized E-Tool (SPRS Panel) works as filter the data as per requirement

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GIS as E-TOOL: Formulation of Policy & Strategies For Slum Development Through Slum Permanent Record System

1. Introduction:

“Slum free city” and “Inclusive city” is mission & vision for the government and urban planners as a part of sustainable city development. Sustainability in terms of equity in habitant living is prime goal for inclusive city. Thus, to touch the untouched buildable sections of the people who are the real pillars of the economic progress of the country. Their inclusiveness as a whole must be accounted in the policies and other various programmers by government and the civil society initiatives. To strive for the affordable sustainable living environment to urban poor with transparent open ended information can provide them the Equity & identity for progressive development. The Absences of Integrated Data Bank and absence of geographic location or region to understand the need and further tackle the issues of urban poor or slum dwellers in Housing & Infrastructure, Education, Health, Social security and Employment section.

Slum Permanent Record System address issue of absence of data base and absence of geographic positioning through customization software with multi layer architecture having DOT-NET platform and C#3.5 program language for Survey data collection E-tool called SPRS PROFILER. The hierarchy wise unique identification code generated at back end and at the same time through GIS represent UID in point or polygon characteristics. Data filtrations represent two structures viz identification of location through GIS server and table structured through SPRS data bank. The cumulative information can be seen on www.sprs.in reporting panel, which is open source for everyone.

Formulation policy and strategies for slum up-gradation or development based city wide characteristics for the Poverty alleviation assessment of slum and urban poor. The actual data with GIS positioning give visualization for sustainable solution towards issue, like relocation of road side slum beveller within 2 to 3 km radius than GIS positioning gives the alternative site or land availability for particular case. At same time this data is utilized for resource mobilization & management at National and State level for different government schemes like Basic Services for Urban Poor(BSUP), Integrated Housing slum Development Program(IHSDP) Scheme, Rajiv Awas yojan, employment, health and education

2. Issues of Concern:

1. Absences Of Integrated Data Bank :At National level so far sector wise (Housing & Infrastructure, Education, Health, Social security and Employment) policies and strategies where developed considering fixed measuring parameters. In present case, absences of integrated data bank for overall up-liftman of slum/ urban poor is missing
2. Absence of Global Positioning of location: The statistical field survey data is available but not plotted in GIS location, in such case policy maker/ decision maker cannot visualize the intensity of issues
3. Absence of slum Development analysis: Housing & Infrastructure sector slum development priority was not on equitable analytic based. Moreover it was subjective decision by implementation authority
4. Absence of resource requirement: The assessment of resources such as financial, land and governance of need based demand is absent in present scenario.
5. Currently, there is no such system that gives the grass root level poverty reports and maps which influence national and State policy decisions, and allocations of resources in favor of the poor.
6. The users of the poverty reports and maps may have specific needs that are not adequately catered for due to inadequate consultations between producers and users of poverty statistics and qualitative poverty assessments. The poverty information and its mode of presentation may therefore need to be harmonized with the specific needs of users within government and among development partners.

3. **Objective:**

The main objective is to provide bridge & support for up-liftmen of the economically weaker sections. For this, we strive for an identity to the discriminated slum dwellers and urban poor by promoting equity & social justice with the goal of supporting national economic growth by:

- Field survey data collection Integrated data bank with GIS interface
- Collective data bank for multiple use, analysis and formation of Policies and Strategies
- Strategic planning for Finance , land & governing resource management
- Transparent & time bound project implementation through E-Governance and use of E-tool for finance and physical progress monitoring.
- To build partnerships that make accessible to the urban poor land, infrastructure and housing finance at affordable rates. In the process, roles and relationships amongst many actors must change to allow community participation and control. Efforts will be made to develop and promote use of cost-effective standardized housing designs for each geo-climatic region

4. **Hierarchy of Poverty Assessment: GIS Representation**

The government has in the recent past made attempts to improve on poverty analysis through the use of a recently developed technique, so as to help target development assistance to the needy. The small-area poverty mapping technique helps to disaggregated the poverty information down to location level, by combining census data with welfare-based sample survey data. Poverty maps can inform the design, implementation and evaluation of poverty eradication programs at the grassroots level. The poverty maps also provide poverty assessment at constituency level. The hierarchy of information from grass roOt individual beneficiary to national level can be gathered through hierarchy of masters having base level information like total census population, gender wise , no of slums, numbers of house hold, cast wise detail ect. The GIS representing characteristics are as under:

Name of Character	Representation code	GIS Representation	Code logarithm	UID data in SPRS profiler
INDIA	IN	Boundary- polygon		
STATE OF INDIA	Census code of State	Hade quarter-Point Boundary- polygon	IN+ State Code	UID-1
DISTRICT	Census code of District	Hade quarter-Point Boundary- polygon	IN+ State Code + District code	UID-2
CITY	Census code of City	Center of city-Point Boundary- polygon	IN+ State Code + District code + City Code	UID-3
ZONE	Zone number of City	Center of Zone-Point Boundary- polygon	IN+ State Code + District code + City Code+ Z. NO	UID-4
WARD	Ward number of City	Center of Ward-Point Boundary- polygon	IN+ State Code + District code + City Code+ W. NO	UID-5
SLUM	Slum Code	Center of Slum-Point Boundary- polygon	IN+ State Code + District code + City Code+ Slum code	UID-6
ROAD NO	Slum Road	Road-Polygon	IN+ State Code + District code + City Code+ Slum code + Road number	UID-7
H.H NO	Slum House hold plot	Beneficiary Plot/ house hold- polygon	IN+ State Code + District code + City Code+ Slum code + Beneficiary House hold number	UID-8
H.H FAMILY	Slum House hold individual	Beneficiary Plot/ house hold- polygon	IN+ State Code + District code + City Code+ Slum code + Beneficiary House	UID-9

MEMBER NO	beneficiary		hold number+ beneficiary individual member no	
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The hierarchy of information final reporting or analysis panel gives the cumulative information of below hierarchy UID detail in particular parameter required for. For example city wide slum population age below 6 year is needed then this gives cumulative information from UID-9. likewise shall provide all 790 parameter as individual and complex integrated analysis.

4.1 Measurement for Characteristics of Slum/urban poor

Poverty is pronounced deprivation in well-being, and comprises many dimensions. Thus, multidimensional, thus measuring presents number of challenges. Selection of Categories for Criteria based on Government of India Ministry of Housing & Urban Poverty Alleviation guideline in view that data can be analyses model runs for any city/town. Three stage detail survey to be carried out by each town/city.

It includes low incomes and the inability to acquire the basic goods and services necessary for survival with dignity. Slum survey collected data in many formats, where many data collection in linguistic parameter and that have to convert in statistical value for assessment and analysis. In order to measure an overall picture of SLUM to achieved the Goal “Policy & Strategies for Eradication of Slum” Slum development strategies assessment done in two main Phase

- City level influence parameter
 - Demographic influence Parameter
 - Economic influence Parameter
 - Physiographic influence parameter
- Categories of Slum level influence parameters
 - Slum status/ basic information on slum
 - Land status
 - Demographic profile of slum
 - Housing status of slum
 - Economic status of slum
 - Access to physical infrastructure
 - Education facilities
 - Health facilities
 - Social development/welfare
 - Occupation status of slum
 - Each category has sub criteria, Criteria and indicator based on Government of India (GOI) formats.

5. Method of study

The data collected as per GOI formats from the grass root level by door to door survey in two stages.

1. slum survey : Slum Profile

Where entire slum information was gathered and transferred to SPRS Profile. At the commencement, the hierarchy of UID-1 to 5 was added in form of masters, where basic information of particular identity was created. At same time GIS positioning and geo-referencing of UID-1 to 5 was constructed as per fixed characteristics. All the information has same line of parameter, which can finally cumulative information from the end level. At this stage basic information of infrastructure gather through road numbers wise in brought basis like type of road , availability of water supply and sewerage ect.

At the time of slum profile the GPS coordinate of five to six point of actual slum was taken for first stage representation of data though Cartographic presentation through GIS servers.

2. Slum House hold survey: The detail door to door house hold survey was conducted by which all the information of individual family member including their livelihood activity was collected. The total station survey was conducted before

assessment of need for financial grant, each individual hut boundary and road area was clearly defined and UID given to those information.

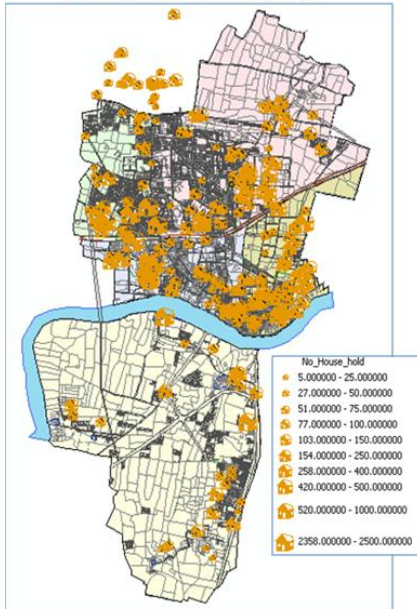
5.1 Reports & Data Presentation

The back end system UID wise data presentation in two forms

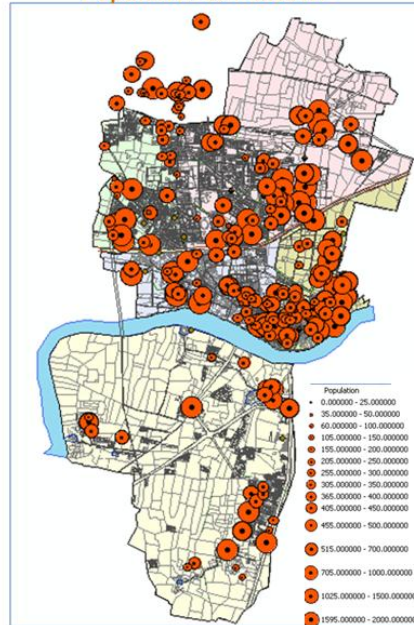
1. Cartographic Presentation:

Population and Number of huts are the base parameters for identifying any slum. Once slum survey is finished the characteristics of slum with different parameter is available and it can be represented on GIS. As for the case of Nanded city of Maharashtra State one can track down from state to Nanded city and thus can get the view shown as under:

House hold as indicator



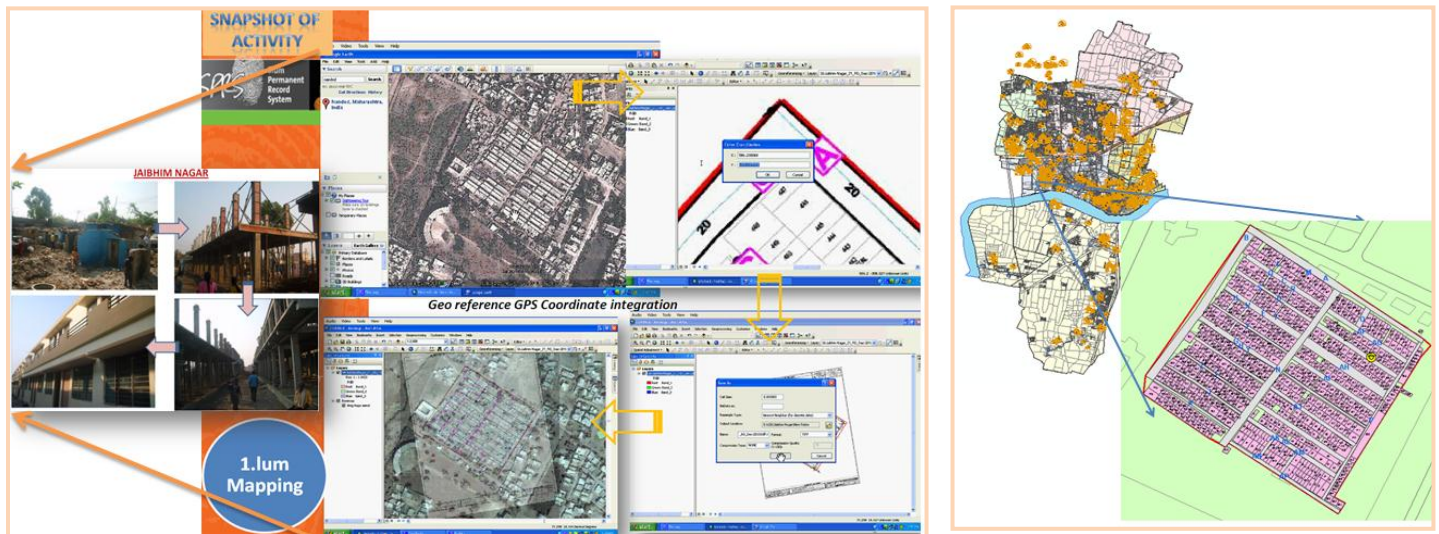
Population as indicator



The field survey data of different parameter with variable criteria gives the snap shot of the characteristics of slum. Slum Development Score (SDS) can be evolved by the city development parameter and slum development parameter. The SDS is developed to analyse slum parameter like land status, housing status, infrastructures, social amenity and social security using Analytical Hierarchy Process (AHP) method. Based on result the slum improvement alternatives can be suggested. This gives the idea of the requirement of different resources.

2. Slum MIS (Management information System)

Slum development or up-gradation based on actual physiographic of individual huts the slum. The development depends on the tenability of land and individual house boundary. Both the characteristics were bound with UID for infrastructure services like water supply, drainage, street light and storm water line parallel to road. Likewise house/ hut has individual UID can give location specific information for same. The snapshot of the activity display down below:



6. Conclusion

The multidimensional nature of the poverty means that the assessment of poverty depending on an individual dimension or one indicator leads to incorrect and incomplete profile of the poverty incidence in an area. This entails, in turn, employing more than one indicator in measuring poverty to provide more comprehensive and accurate picture about the poverty incidence. In this respect it is suggested to use an average poverty level depending on various economic, demographic and social indicators. Such an average poverty levels, it is thought that, will be more reliable in assessing poverty as they take into account various dimensions of poverty.

The study is to generate resource for poverty alleviation alternatives particularly in Housing and physical Infrastructure sector. Consequently this research makes strong statements and tries to argue its case from the perspectives of the urban poor is depend on the characteristics of the parent urban center. The other important aspect is in poverty alleviation program based on general formulation where the need and characteristics is changed from time to time and place to place. The analytical approach for formulation of housing need and planning policy for urban center in particular.

GIS is considered as a very powerful tool for developing poverty maps displaying different dimensions of poverty and spatial variations of its levels. The developed poverty maps can be used in the decision-making process and be as a guide for governmental intervention. This can ultimately contribute to poverty alleviation at local level.