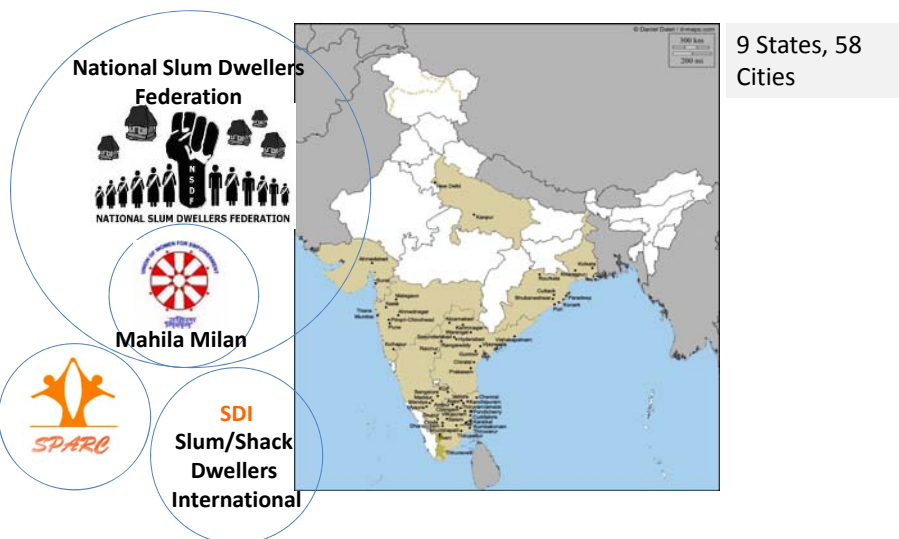


[Participatory mapping for city-wide slum upgrading in India]

By
Society for the Promotion of Area Resource Centres
(SPARC), Mumbai, India
May 2012

The Alliance of SPARC, the National Slum Dwellers Federation and *Mahila Milan* (an association of slum and pavement dwellers' women's savings groups) has over the 25 years of their association, developed their strategies, processes and projects to facilitate urban slum dwellers to access basic amenities such as housing and infrastructure.

[About SPARC, India]



[Slum Policy, India]

The Solution?

4th June 2009
Indian President's Announcement

"My Government's effort would be to create a Slum Free India in Five years through the Rajiv Awas Yojana...which would extend support to states willing to assign property rights to people in slum areas..it will be based on a whole city approach"

Rajiv Awas Yojana:

Phase 1: City-wide data collection on slums to create a slum database

Phase 2: City-wide slum upgrading/relocation Plans

[Mapping Slums, India]

HOW to map?

01

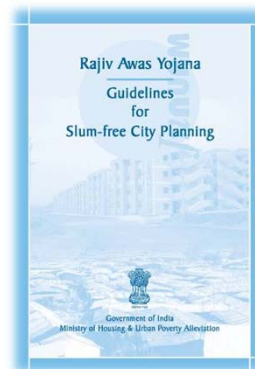
Base Map preparation, **Remote sensing** to identify slums

02

Detailed Field Survey of all slums, **Total station surveys** for hut mapping, **Ground penetrating radar** for infrastructure mapping

03

Input of data into GIS, MIS and integration of the two



PURPOSE

To map **every** hut/plot in every slum across the city

Technical Cell under RAY set up in the city local body for this task

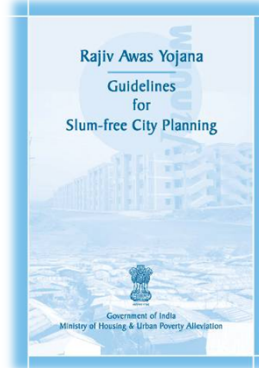
[Mapping Slums, India]

WHO will map?

Annexure X of the RAY, GIS-MIS guidelines, provides a one-page (out of 70 odd pages) broad outline of community participation, but there is no mandatory requirement that this will be followed by contracted consultants.

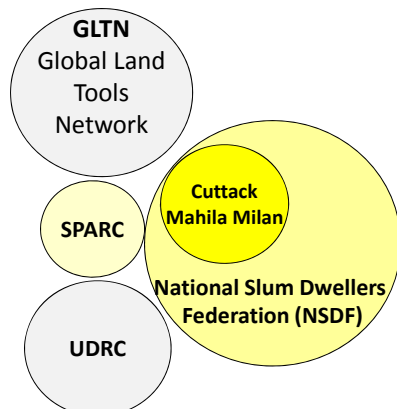
(Page 28, 5.4) “..the requirement of manpower for the technical cell lists staff qualifications should include social science graduates, civil/municipal engineering, GIS or remote sensing specialists, town planners, surveyors and draughtsman..”

(Page 13, 3.5) Involvement of local community during slum mapping – lists training in slum profiling for ULB staff but none for communities.



[Mapping Slums, India]

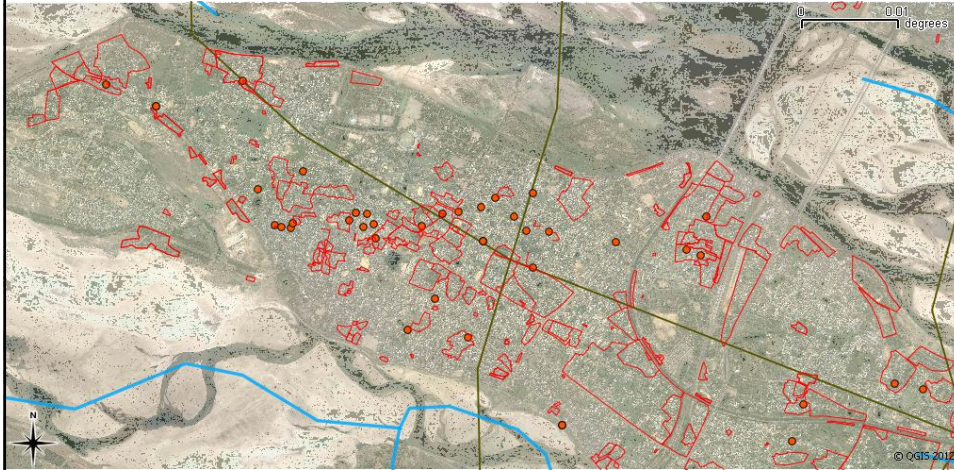
A Pilot Project in Cuttack, Odisha, India
2010-2011



[Mapping Slums, India]

A Pilot Project in Cuttack, Odisha, India

[Cuttack, Odisha, Community collected survey data and GPS data put into QGIS]



Cuttack: 345 slums discovered during mapping, Official number of slums is 263

[Mapping Slums, India]

A Pilot Project in Cuttack, Odisha, India



- Recognition of community collected data:
April 2011 – Procurement for GIS consultants under RAY released
March 2012 – Cuttack corporation asks for data from SPARC

[Mapping Slums, India]

A Pilot Project in Cuttack, Odisha, India

HOW to map?

01



Settlement Survey

02



GPS

03



Google Earth

04



Quantum GIS

[Mapping Slums, India]

A Pilot Project in Cuttack, Odisha, India

WHO will map?



Communities, Communities, Communities

[Mapping Slums, India]

WHAT to map?



[Mapping Slums, India]

WHAT to map?



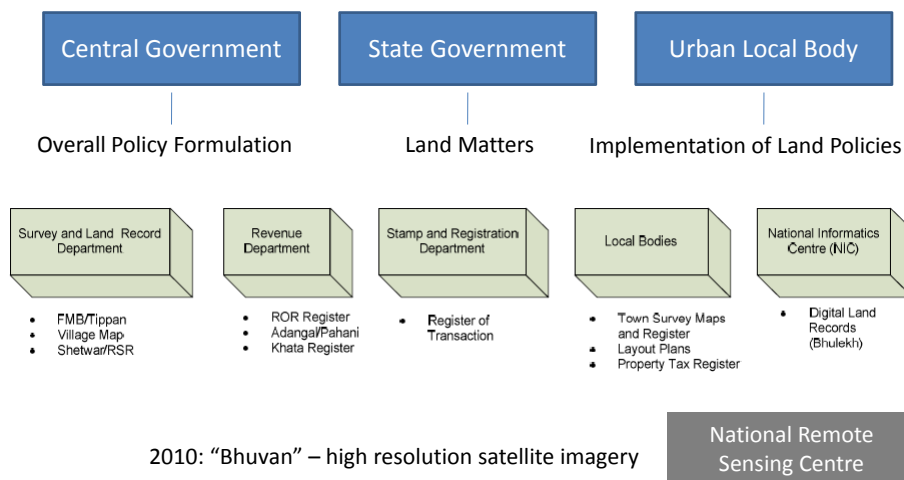
[Mapping Slums, India]

WHAT to map?



[Mapping Slums, India]

Institutional Arrangements



SOURCE: Spatial Data Infrastructure for pro-poor land management, Paudyal and McDougall, FIG Congress 2010

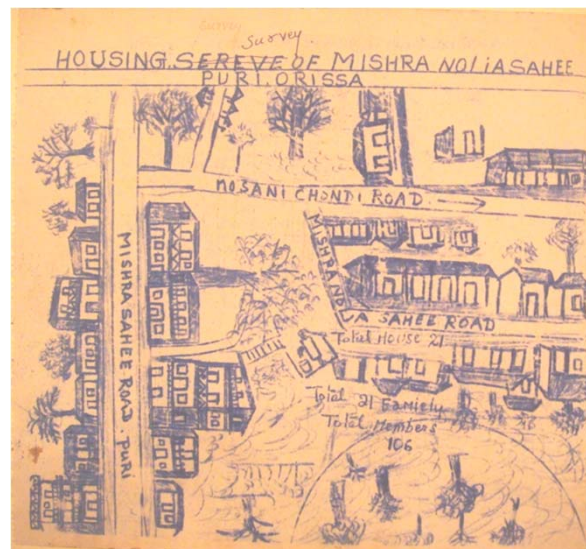
[Mapping Slums, India]

A Pilot Project in Cuttack, Odisha, India



Impacts
Local
National
International

The changing role of land professionals



Contact SPARC Alliance: sparc1@vsnl.com or sparcnsdfmm@gmail.com

Website: www.sparcindia.org/

Youtube: <http://www.youtube.com/user/sparcnsdfmm>

18

[Some Recommendations]

- 01 Awareness and Capacity building** of communities/CBOs/NGOs using **local languages** (RAY guidelines translated for better reach)
- 02 Obtaining city-level data from various sources: clarity needed on how exactly and who will take on responsibility for this**
- 03 Use of simple and accessible technology and mapping methods:**
The level of technology and mapping methodology must be such that brings all stakeholders into city level mapping which is manageable in cities where the capacity is relatively low.
- 04 Phase-wise data collection:**
Settlement-level surveying, and boundary mapping of slums
Assess slum needs, use pre-selected criteria to prioritize slums to be taken up for upgrading
Do detailed household and livelihood surveys, and total station surveys (for individual house plots) in selected slums only

19

[Some Recommendations]

- 05 Updating Data:**
 - The slum boundary needs to be updated on the day of survey or on the date decided by the State Government, but this should be considered as flexible in the long run
 - Updating (of slum lists, of slum survey and mapping data) needs to be built into the process, and cannot be a cost or responsibility solely to be borne by contracted agencies.
- 06 Procurement Norms to include CBOs/NGOs:**
 - Empanelment of NGOs and CBOs at more levels of mapping and surveying activities
 - Pilots to be taken up to 'test' a community-led process

20

[Key Issues]

Unclear roles for community/CBO/NGO participation

Annexure X of the RAY, GIS-MIS guidelines, provides a one-page (out of 70 odd pages) broad outline of community participation, but there is no mandatory requirement that this will be followed by contracted consultants.

- (Page 10) Slum Survey: “..the socio-economic survey can be carried out by the ULBs on their *own* or through engaging an agency..”
- (Page 28, 5.4) “..the requirement of manpower for the technical cell lists staff qualifications should include social science graduates, civil/municipal engineering, GIS or remote sensing specialists, town planners, surveyors and draughtsman..”
- (Page 13, 3.5) Involvement of local community during slum mapping – lists training in slum profiling for ULB staff but none for communities.

[Key Issues]

Aggregating data from various sources

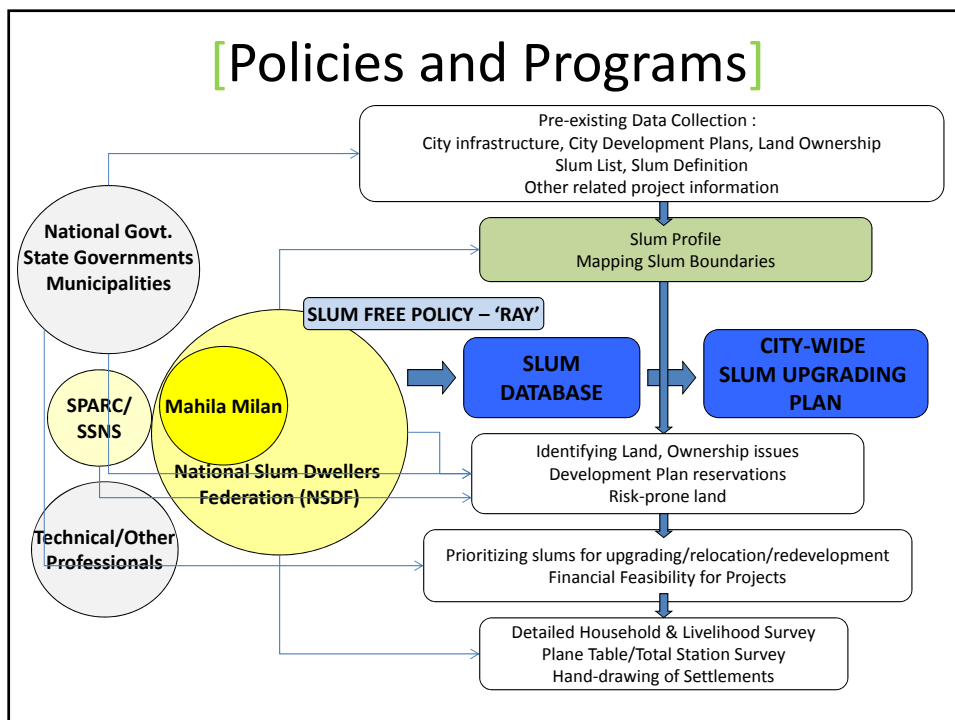
- **Who will provide city-level information? The concern is that ULB's and Water Boards even, rarely have this information or are unwilling to share.**
- **It is unclear from the RAY guidelines, the agency that is responsible and accountable for collecting existing spatial city-level data:**
 - (Page 2) “The ULB is to build an inventory of existing spatial data available with various agencies. Under RAY, it is planned to have a *Technical Cell*, which will have responsibilities to coordinate and collect data from state governments, NRSC/ISRO, SOI, NIC etc.”
 - (Page 24, 5.2.3) “..the *technical consultant* will procure satellite images or maps from official sources...” (Page 28) “..provide technical consultants with maps of survey areas, necessary authorization to procure satellite images”

[Key Issues]

Exclusionary Bid and Contract Specifications

- Eligibility criteria automatically eliminates NGO/CBO participation and there is no other form of empanelment to ensure that communities are involved in data collection and mapping
- Scope of work: One tender includes the work of Total Station Surveys *and* GIS which is too large a scope of work, especially since this includes not only slum level data collection but city level data integration – **the time taken to complete this exercise must be weighed against the time in hand, and the necessity to collect such extensive information**

[Policies and Programs]

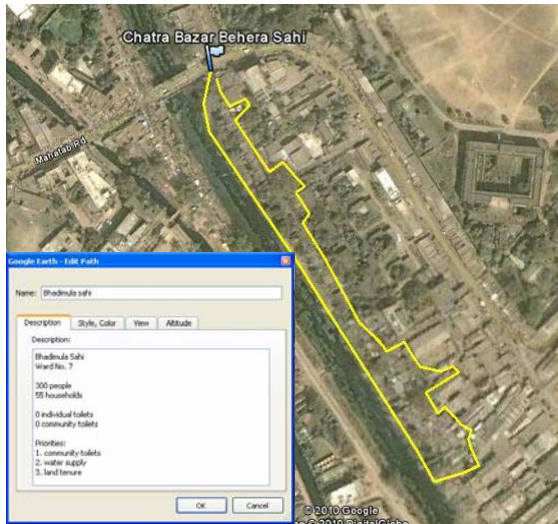


The Alliance: Participatory Slum Mapping Pilot in India Process Guide: Step 01. Filling out the Slum Survey

O.M.M
63/64

NATIONAL SLUM OWNERS FEDERATION SETTLEMENT PROFILE	
1. Settlement Name	Thiruvananthapuram
2. Location	
3. Name of Slum	Arundankal
4. Location of the slum (landmarks)	Valappalam
5. Name and address of owner/owner	No. 68/69, St. Paul's Road, P.O. P.O. P.O. Vandalakkulam, T.N.
6. LAND	
7. Area (sq. m)	3.000
8. Land use	Residential
9. Allocation/Construction	Govt. Subsidy
10. Category of land	
11. Category	
12. P. No. Section	
13. Longitude	
14. N/A. Other	
15. Infrastructure	
16. Water	25
17. Sewerage	20
18. Electricity	2
19. Drainage	1
20. Other	
21. Demographic Characteristics	
22. Total number of households	70
23. Population	250
24. Number of males	150
25. Number of females	100
26. Number of children (0-12)	50
27. Number of children (13-18)	20
28. Number of children (19-24)	10
29. Number of children (25-34)	10
30. Number of children (35-44)	10
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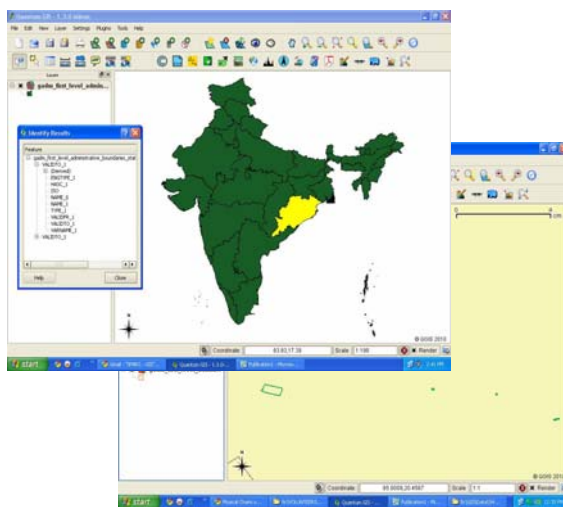
The Alliance: Participatory Slum Mapping Pilot in India Process Guide: Step 03. Importing GPS points to Google



- The digital (GPS) location points are then imported to Google Earth to join the points to make a complete boundary line.

- Selected Slum Profile data is entered into the properties box for each slum boundary.

The Alliance: Participatory Slum Mapping Pilot in India Process Guide: Step 04. Analysis in OPEN-SOURCE GIS



- Google Earth files are imported in QGIS and converted into shape files.

- Slum profile information is attached as 'attribute table' data for all slums.

- Additional layers such as city administrative boundaries, infrastructure layout, ownership, geographical features will be used as the backdrop against which slum data is represented.

GIS : Poverty Mapping to Slum Planning Technical/Organizational challenges

Open Source or Not?		
PostGIS, QGIS		ESRI
Database Management Systems?		
PostGres/SQL	<ul style="list-style-type: none">• Costs• Manpower• Skills-set• Equipment• Support• Training	Microsoft/Oracle