

**United Nations Expert Group on the Integration of
Statistical and Geospatial Information**
First Meeting
New York, 30 October - 1 November 2013

Agenda: Item 10

Statistical and Geospatial Framework
Indian Experience in Managing Confidentiality
and Data Access ¹

Prepared by India

¹ This document is being produced without formal editing



Statistical and Geospatial Framework

Indian Experience in Managing Confidentiality and Data Access

Ministry of Statistics & Programme Implementation
National Sample Survey Office
Government of India

Statistical System in India

- India has a federal structure of Government and the Indian Statistical System functions within the overall administrative set up of the country.
- The division of responsibility for administration between the Union Government and the State Governments is on the basis of three-fold classification of all subjects, namely, the Union List, the State List, and the Concurrent List. Statistics is a subject in the Concurrent list.
- There is a further division of responsibility, by subjects or groups of subjects, among the different Ministries/Departments of the Union Government and among the Departments of State Governments, on the basis of their administrative functions..
- The Ministry of Statistics and Programme Implementation (MoSPI) is the nodal agency for planning and facilitating the integrated development of the statistical system in the country.

Administrative Units in the Country and Generation of Statistics

- The country has been divided into states, districts, sub-districts/ talukas/ blocks for administrative and planning purposes, the districts forming the third tier of administration.
- Rural areas – village panchayats – villages – hamlets
- Urban areas – statutory towns – corporations/ municipalities/ notified areas etc. – electoral wards. Non statutory towns are census towns.
- Statistics are collected from local level and aggregated systematically at higher level of governance and planning. In case of data gaps, sample surveys are carried out at national/ state level.
- The most important censuses encompassing the whole Indian union, are population census, economic census, agriculture census, livestock census, education census.
- Recently, efforts have been started to develop basic statistics for local development thus compiling village level statistics in rural areas through the panchayats and at ward and cities/town level through similar exercises.

Geospatial Databases in the Country

- The country is rich in geospatial databases, most of them generated by Survey of India. There are specialized government agencies which also provide geospatial databases for specific functions and use of certain Ministries/Departments. Many of the databases have the linkages with statistical data and attributes.
- Administrative boundaries upto village level, rail lines, all roads, drainage, settlement and helmet points are available.
- Natural resource inventories are available at different scale ranging from 1:250,000 to 1:10,000 scales providing information to users at nation/ state/ district/ village/ micro watershed level and thematic maps.
- The natural resource census project of NRSC uses resourcesat images 55m, 23m and 5.8m to prepare natural resource information layers.
- Bhuvan is a geo-portal from NRSC/ISRO and is available in public domain and it provides access to satellite data and natural resources maps created by NRSC through its various program.
- Amenities : Schools, education facilities, hospitals/ health facilities, banks, seed centres, markets, tourism sites and utilities like power, gas, telecom.

Geospatial Data and Linkage to Statistics at Elementary Spatial Units

- Two systems are in vogue, one is enumeration blocks of Census of India and another urban blocks of the National Sample Survey Office. In Census, the cities/towns are divided into wards, supervisory circles and enumeration blocks (EB) for the purpose of house listing and population enumeration. Wards also work for electoral purpose.
- Population and related statistics are available at EB level. The EBs also works as frame for economic census and the sample surveys on unorganized industrial sectors.
- The socio economic surveys every year conducted on varied subjects uses the urban blocks as the frame. Many other government departments, NGOs and research agencies also use this frame for their surveys.
- Agricultural census and the collection of area, yield and production data utilizes well established land records system consisting of survey numbers and individual plots/ parcels and their ownership.

Urban Blocks – Urban Frame Survey

- UFS covers the whole Indian union comprising of 7933 cities/towns (4041 statutory and 3892 census towns) as per the Census 2011.
- It provides complete, updated, identifiable, operationally convenient and readily accessible sampling frame of FSUs for the urban area.
- Under the UFS, all the towns are physically surveyed and separate UFS blocks and IV units (a group of blocks) are carved out so as to cover the whole geographical area of the town. UFS Blocks are updated over a five year period, each process of updation, called as phase.
- Supplementary information on type of area such as slum area, residential area, industrial area, education, hospital, bazar area prohibited area etc. collected during the survey/updation and some auxiliary information/landmarks such as school, post office, bus stand, clinic etc. are recorded for each block. These help in selection of blocks with certain characteristics for the socio economic surveys.

IV Unit Maps in GIS Framework

The UFS blocks are formed with natural/ permanent boundaries. Block size are estimated by visiting every structure and counting the number of households. Normally one block contains 80-200 households and an IV unit, 20-50 blocks. The boundaries of the UFS blocks have been frozen.

- UFS is conducted by the permanent, well trained and experienced investigators.
- Two maps are prepared, one is IV Unit map showing the location of all the blocks included in the Unit and another, the town map depicting the location and relative positioning of IV units in the town. There are town schedule, IV unit schedule and list of blocks. These are notional maps prepared by the Investigators.
- Of late, demand of UFS maps has increased many-fold. Various Government organizations, Research fellows and other private institutions interested in taking up surveys in urban area are procuring UFS maps of selected blocks from NSSO.

IV Unit Maps in GIS Framework

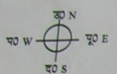
- NSSO has initiated the conversion of IV unit maps to GIS framework in a uniform scale with the help of NIC.
- The system identifies the corner points of the blocks and the landmarks and networks on the imageries and then verify the same in the field and adding/ altering few essential utilities and land marks with the help of GPS devices/ mobile enabled GPS services.
- All the activities has been proposed to be carried out in the field with the help of web based application and with some trainings to field functionaries, they will be able to trace/ digitize the block boundaries on top of the imaginaries based on identification of the permanent boundaries etc., themselves.
- It can integrate other geo spatial information as sort of layers and would be helpful in analysing the results of socio economic surveys.

भारत सरकार
 GOVERNMENT OF INDIA
 राष्ट्रीय प्रतिदर्श सर्वेक्षण संगठन
 NATIONAL SAMPLE SURVEY ORGANISATION
 राष्ट्रीय ढांचा सर्वेक्षण 2007-2012
 URBAN FRAME SURVEY 2007-2012

अन्वेषक इकाई संख्या
 INVESTIGATOR UNIT NO. 1
 वर्ड संख्या (नाम)
 WARD NOS (NAME) _____

कस्बा/नगर
 TOWN/CITY REWARI
 राज्य
 STATE HARYANA

रेडो कोऑरिनेट
 R.O. CHANDIGARH
 संदर्भ
 REFERENCES



अन्वेषक इकाई की सीमा
 INV. UNIT BOUNDARY 0-0-0
 वर्ड की सीमा
 WARD BOUNDARY 'X'X'
 ब्लॉक की सीमा
 BLOCK BOUNDARY
 शहर की सीमा
 TOWN BOUNDARY -X-X-

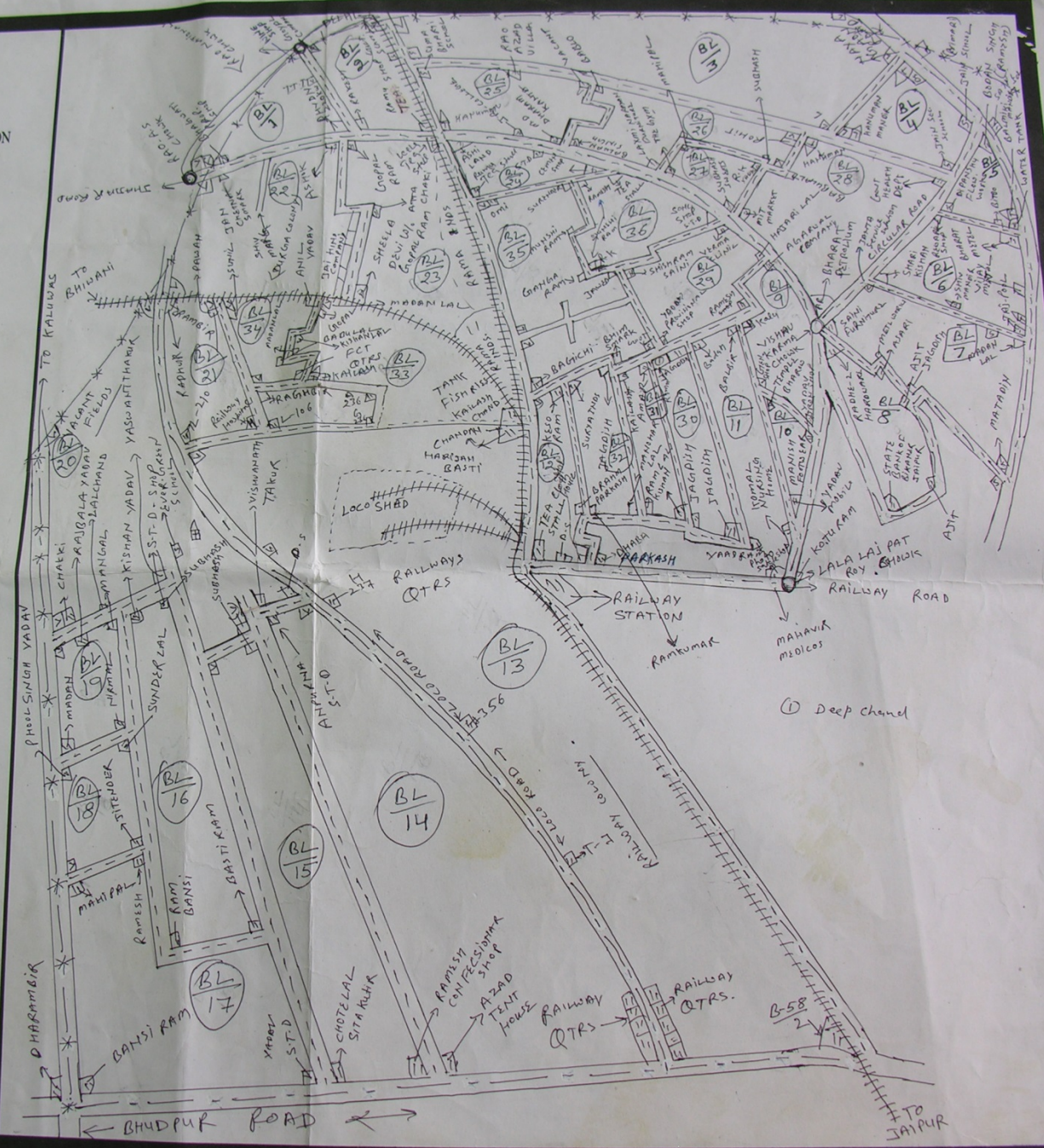
- पक्का मकान
 PUCCA HOUSE [Symbol]
- कच्चा मकान
 KATCHA HOUSE [Symbol]
- रिक्त प्लॉट
 VACANT PLOT [Symbol]
- रेलवे लाइन
 RAILWAY TRACK [Symbol]
- मंदिर
 TEMPLE [Symbol]
- मस्जिद
 MOSQUE [Symbol]
- गिरजाघर
 CHURCH [Symbol]
- अस्पताल
 HOSPITAL [Symbol]
- स्कूल
 SCHOOL [Symbol]

कुल ब्लॉक
 TOTAL BLOCKS 36
 कुल घरों की संख्या
 TOTAL NO. OF HOUSE HOLDS 45-75
 मानचित्र बनाने वाले का नाम
 MAP PREPARED BY KULDEEP SINGH

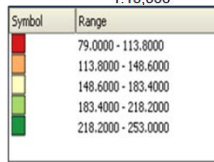
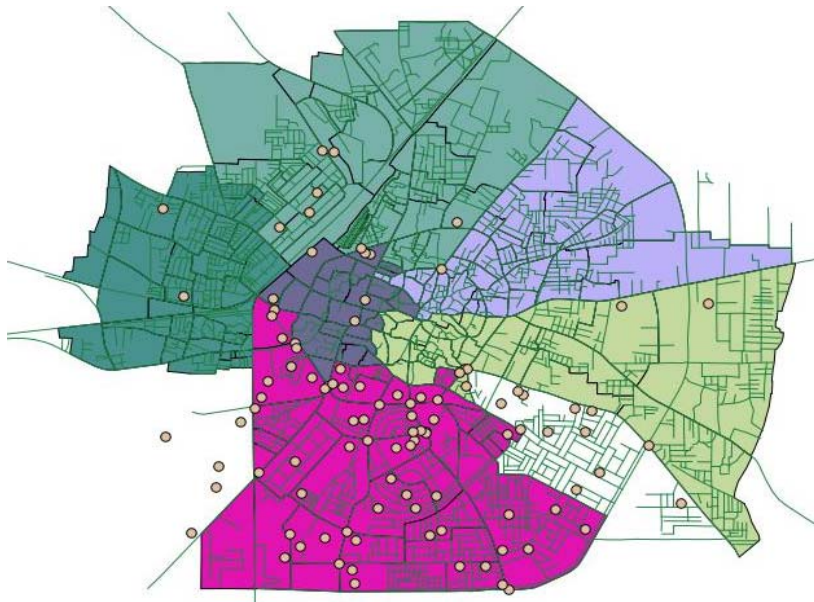
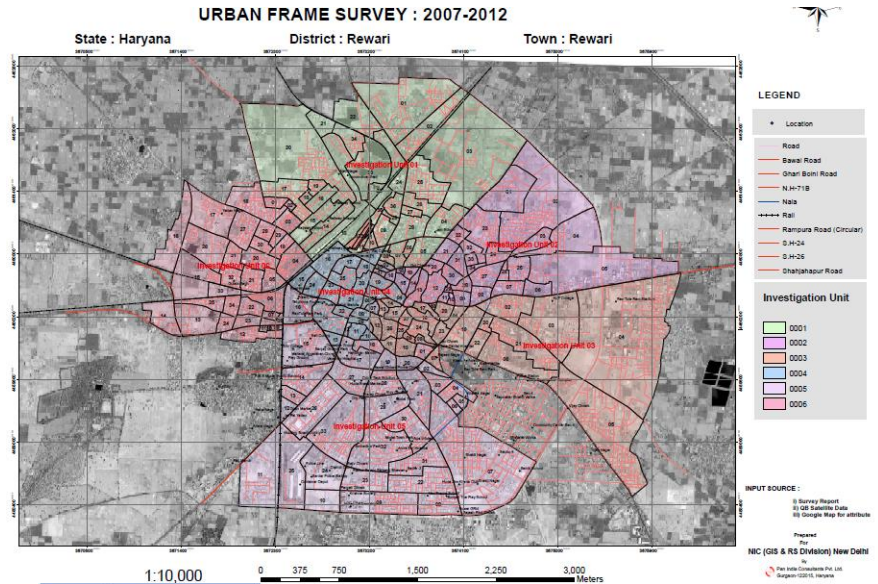
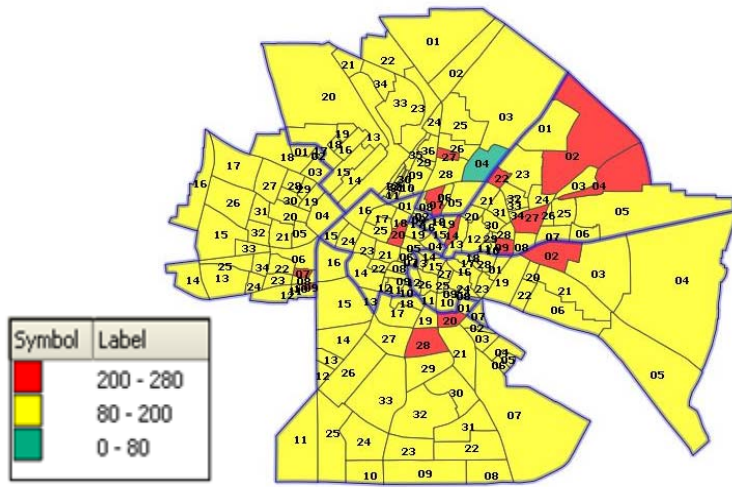
दिनांक
 DATE 21/12/09 To 28/01/10

पैमाने के अनुकूल नहीं
 NOT ACCORDING TO SCALE

**जो लागू नहीं होता उसे काट दीजिये
 (DELETE WHICHEVER IS IN APPLICABLE)



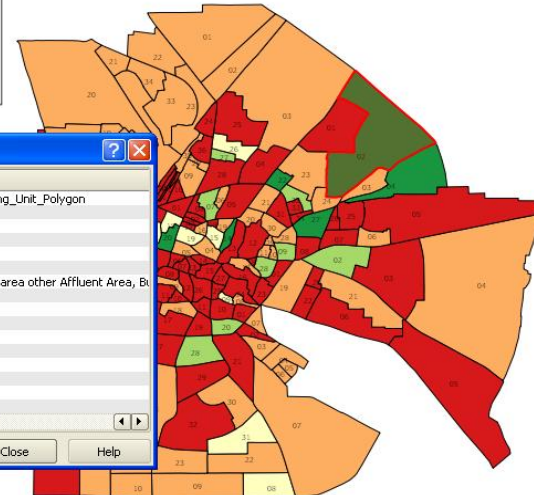
UFS using GIS – Rewari Town



Identify Results

Feature	Value
0	Investigating_Unit_Polygon
State_Name	Haryana
(Actions)	
(Derived)	
Auxi_Code	0
Block_No	02
Descriptio	Residential area other Affluent Area, B
District_C	17
District_N	Rewari
Frame_Code	15
Investi_Un	0002
No_of_Hous	249
State_Code	06
State_Name	Haryana
Town_Code	03
Type_of_Ar	RA,BA

Close Help



Problem with Statistical and Geospatial Data

- India has extensive ground survey maps/ data, cadastral maps, satellite imageries and robust statistical system of data generation. However, the linkages of geospatial data is limited to district level. The enumeration block level data is yet to be geo referenced. No spatial data at individual, household, house or industry level is available.
- The current regime of data management generally does not enable open sharing of Government owned data with other arms of the government nor does it expect proactive disclosure of sharable data available with data owners. The user departments have their own systems and requirements and in many cases there is no system to update the geospatial data in the desired manner.
- Such regimes has lead to duplication of efforts and loss of efficiency of planning of activities focused on national development. Efficient sharing of data among data owners and inter and intra governmental agencies and with public calls for data standards and interoperable systems.
- It needs easy to use GIS decision support system to bring scientific, participatory and quality into governance.

Data Confidentiality and Access

- As far as statistical information is concerned, confidentiality refers to non disclosure of unit level information about the person, household or establishment or a group at small area level. It is maintained by removing the identification of the entities and with the possible merger at group / subgroup levels. This applies to geo spatial data too.
- Under the Collection of Statistics Act, the statistics collected from the individuals can be used only for the purpose it was collected under the Act and through notices. Choices with respect to providing information can be used only after their consent.
- India has national map policy which ensures that no civil and military vulnerable areas and vulnerable points are shown in open series maps of Survey of India.
- Data may be non sharable as declared by the controlling Departments/ organizations, restricted as accessible only through a prescribed process of registration and authorization by respective departments/ organizations and sensitive as defined in various Acts and Rules of the Govt. of India.

Data Confidentiality and Access

- National Spatial Data Infrastructure (NSDI) has been launched as India geo portal with affiliation of 17 nodal agencies. Metadata is on the web.
- National Data Sharing and Access Policy have been made which aims to provide an enabling provision and platform for providing proactive and open access to the data generated through public funds available with various departments / organizations of Government of India.
- The objective of this policy is to facilitate the access to Government of India owned shareable data and information in both human readable and machine readable forms through a network all over the country in a proactive and periodically updatable manner, within the framework of various related policies, Acts and rules of Government of India, thereby permitting a wider accessibility and use of public data and information.



Thanks