

Land Record Modernization GURGAON

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Land Records

Gaps in Indian System

- Revenue Records are Presumptive
 Title awarded only through adjudication based on circumstantial evidence
- Deed Registration doesn't convey title
- Urban records & Registration: separate systems
- Multiple handling agencies lack of coordination
- Old and outdated, incomplete and inaccurate cadastral records – graphical + textual



Impact on Economy

Current Land Record System

- Insecure Title: 1.3% loss in India's GDP growth rate due to unclear land titles
- Title & Boundary Dispute: Costly Litigation
 - 5% of urban areas, 28% of peri-urban areas
- Single Task-Multiple Processes, Difficult accessibility to public and interest groups
- Land Records become the primary bottleneck for ensuring Ease of Doing Business.





Haryana Revenue System

Historical Scenario

First Survey and Settlement 1907-13

Re-Survey for Consolidation 1957-61

Land Area
 44,212 sq. km.

No. of. Villages 7,085

No. of Musavies 65,000

No. of Parcels1,05,00,000+

 Fairly evolved Land Record System for that time





Haryana Revenue System

Progress in Recent Years

- In 2007, started experiments in Digitization & Modernisation of Land Records
- Digitisation of Cadastal Map in Entire District
 - Sirsa Kamal Village
- Digitisation of Urban Land Records and Habitats
 - Bhiwani District
- Digitisation of both Urban & Rural Areas
 - Rohtak District





What we couldn't achieve?

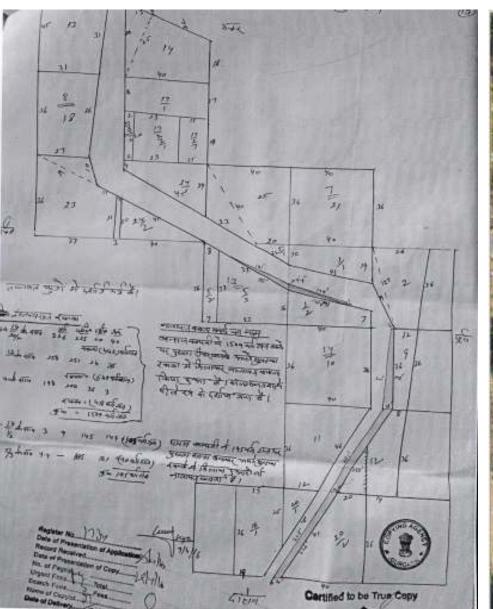
- 100% textual record entry and updation
- GIS Mapping
- Linkages between GIS & textual Data
- No correction of historical errors





Ground Reality: Increasing Disputes

Case Study: Nala Encroachement





Good Governance

Importance of Land Record Modernization

- Move from "Presumed Titles" to "Conclusive Titles"
- Link the conclusive titles to the economic process, disaster management, food security, land acquisition, rehabilitation & resettlement.
- Decision making facilitated in determining location of roads, bridges & watersheds etc.
- Decision making facilitated in schemes requiring information of property owners with the availability of up-to-date records.



Land Record Modernization EXPERIMENTS & INNOVATIONS

1. DISTRICT LEVEL: GURGAONGeodetic Triangulation

- 2. TEHSIL LEVEL: MANESAR
 Land Record Updation & Validation
- 3. TEHSIL LEVEL: SOHNA
 Land Tax Information Management
- 4. CITY LEVEL: GURGAON
 Property Tax & Disaster Management





1. DISTRICT LEVEL: GURGAON

Geodetic Triangulation

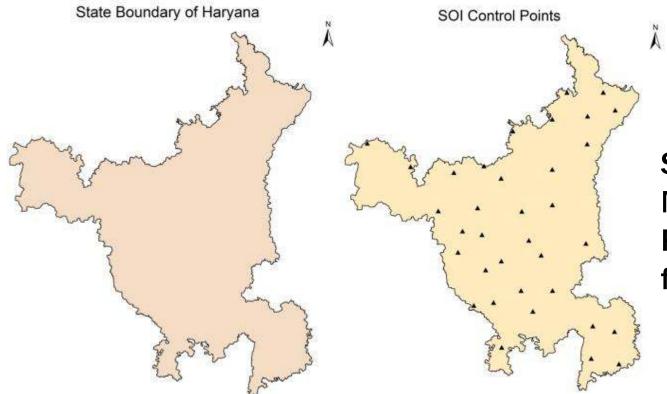




Geodetic Triangulation

Why is it needed?

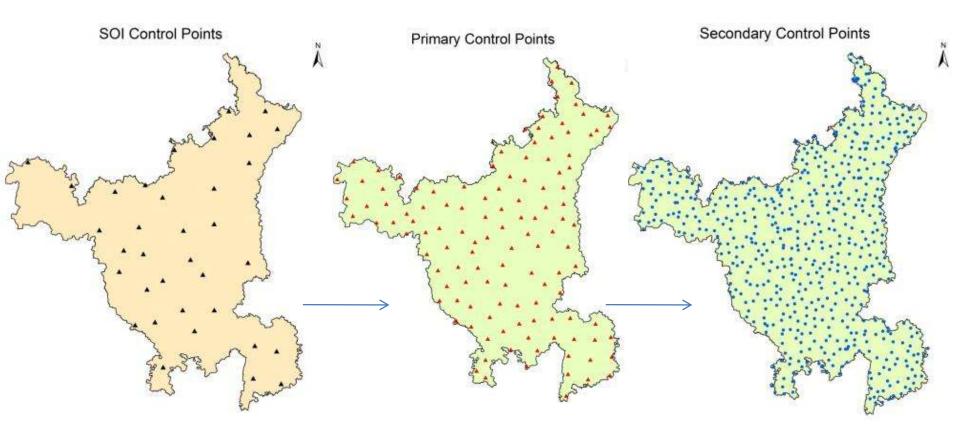
 Presently, the Precision Coordinates from Survey of India "Benchmark" are the only available means to locate Government Assets within the Entire State



Survey of India Master Control Points – 35 nos for whole state

Geodetic Triangulation

Triangulation of District Gurgaon



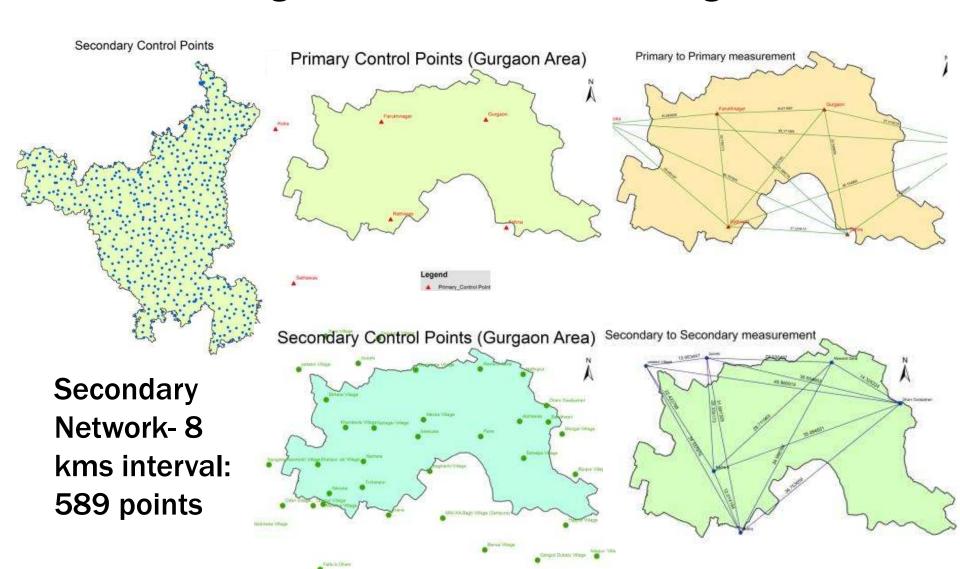
Survey of India Master Control Points – 35 nos

Established Primary Network- 20 kms interval: 121 points

Created Secondary Network- 8 kms interval: 589 points

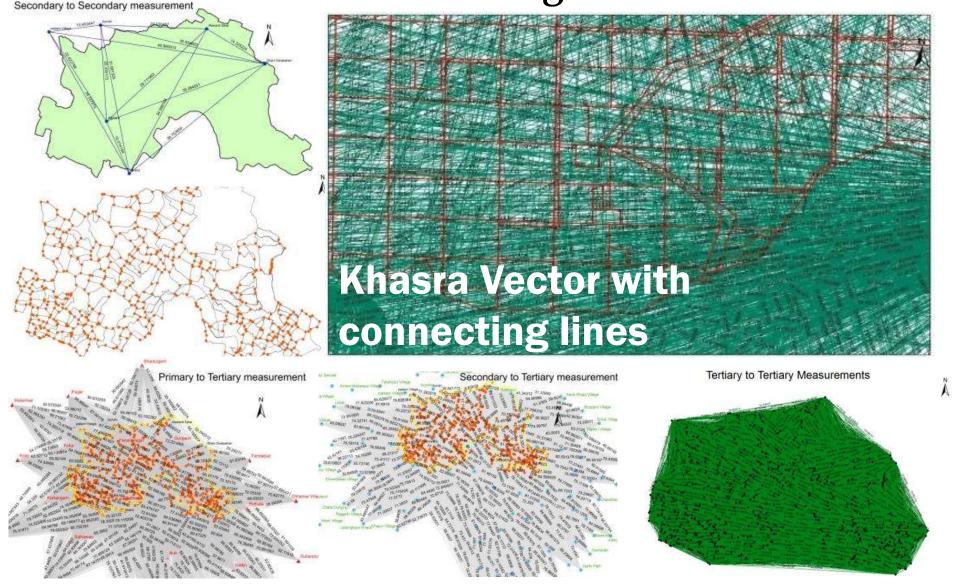
Geodetic Triangulation

Triangulation of District Gurgaon



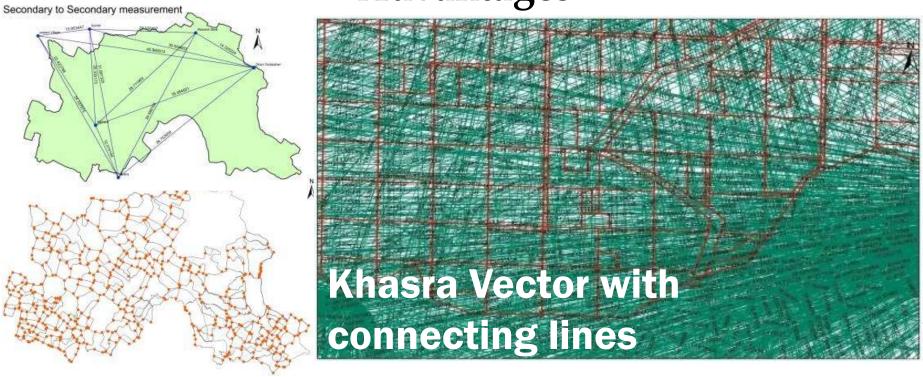
Triangulation Survey

District Gurgaon



Triangulation of Gurgaon

Advantages



- Can be used for any accurate measurements
- Dense triangulation today covers almost every pixel of Gurgaon district

2. TEHSIL LEVEL: MANESAR

Land Record Validation

Manesar Land Records

Existing Problems

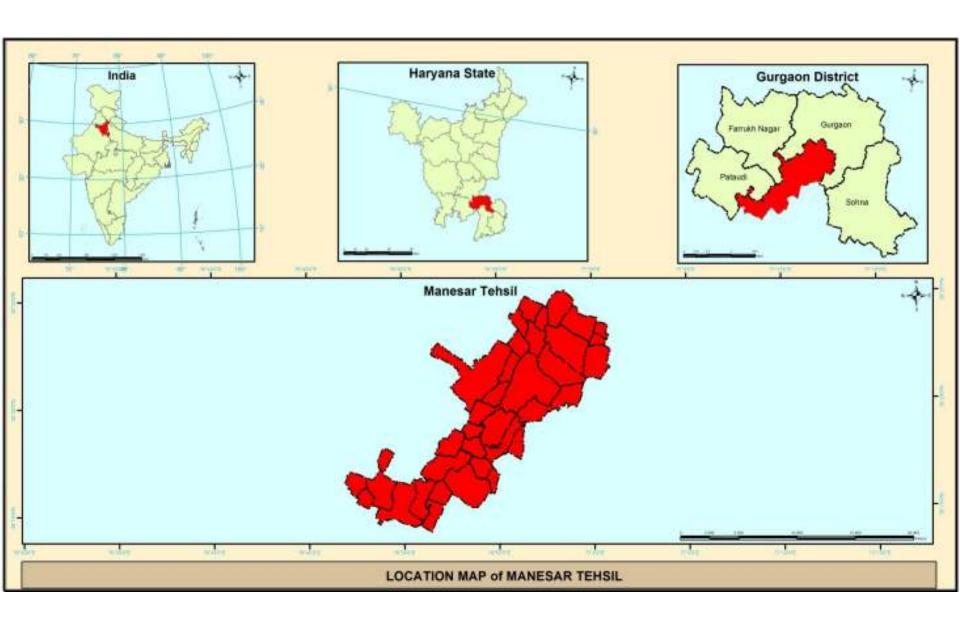
- Land records not updated after 1961
- No exercise conducted for identifying & correcting Historical Errors in Data
- Outdated Record keeping System

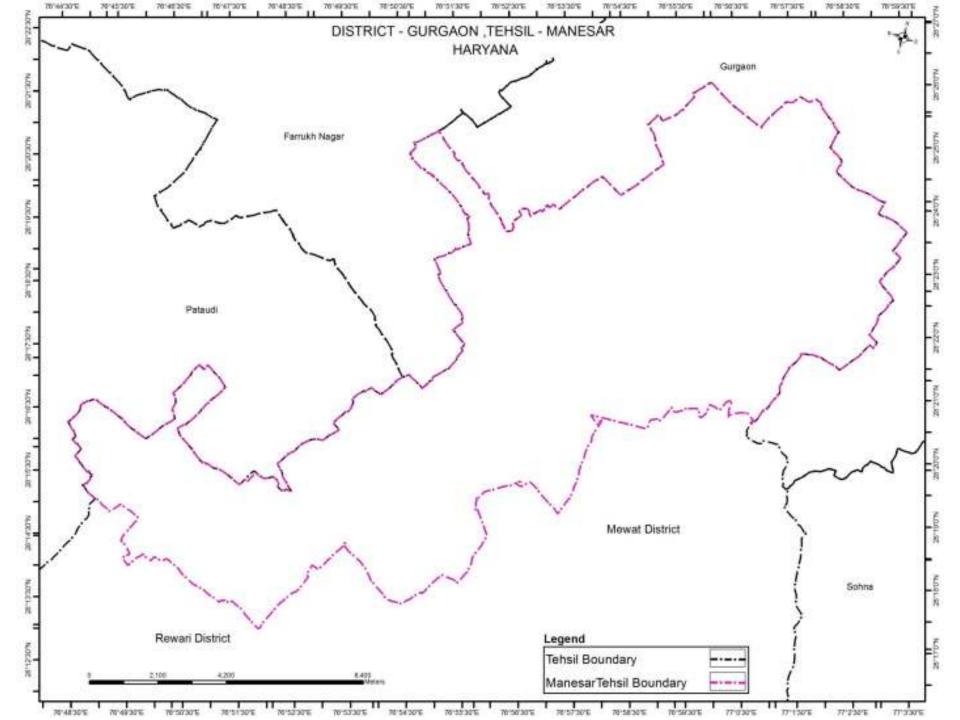


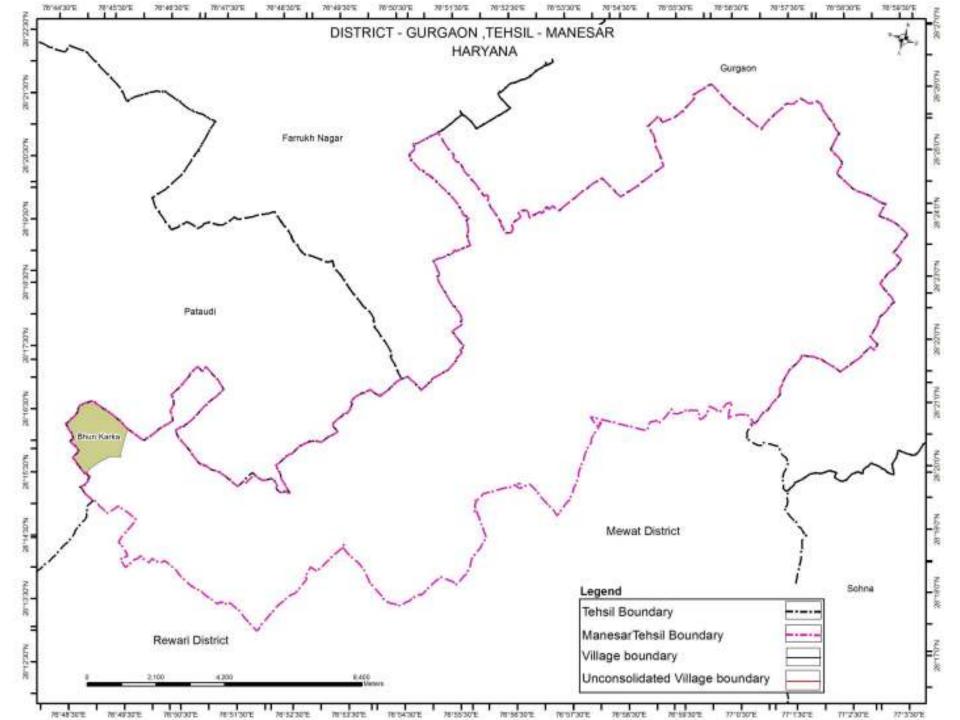


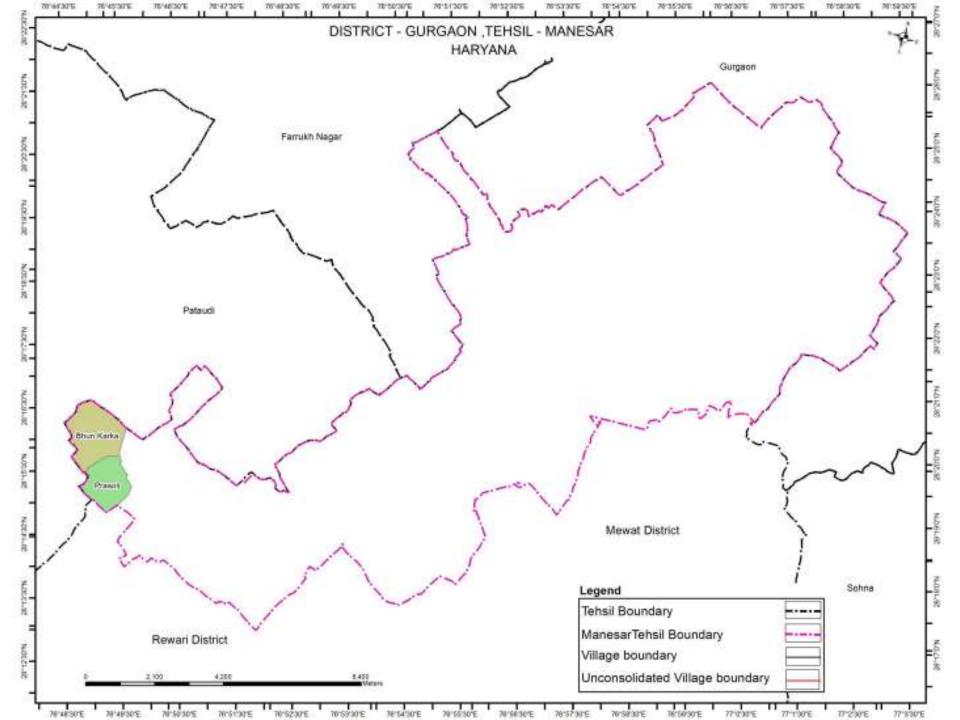
Manesar Land Records Objectives

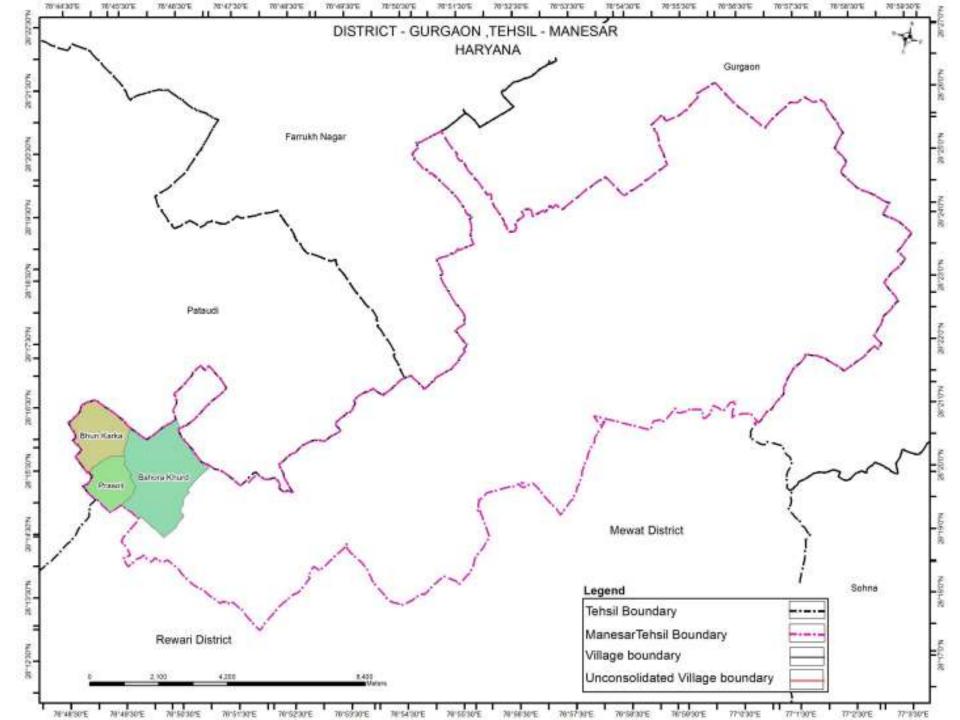
- Build a transparent and integrated system of online real-time land records (including maintenance and updating of textual records, maps, survey and settlement operations and registration)
- Ensure cadastral records mirror the ground reality
- Ensure Automatic Mutation
- Make necessary legal changes/amendments to facilitate the modernization of land records process
- Facilitate conclusive titling system to minimize land/property disputes

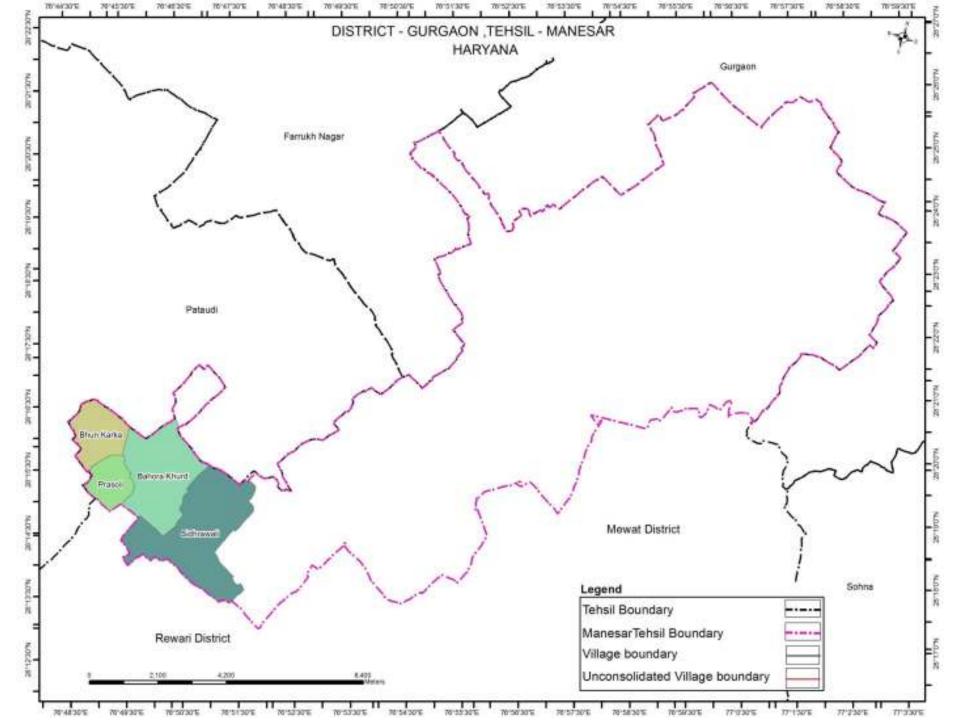


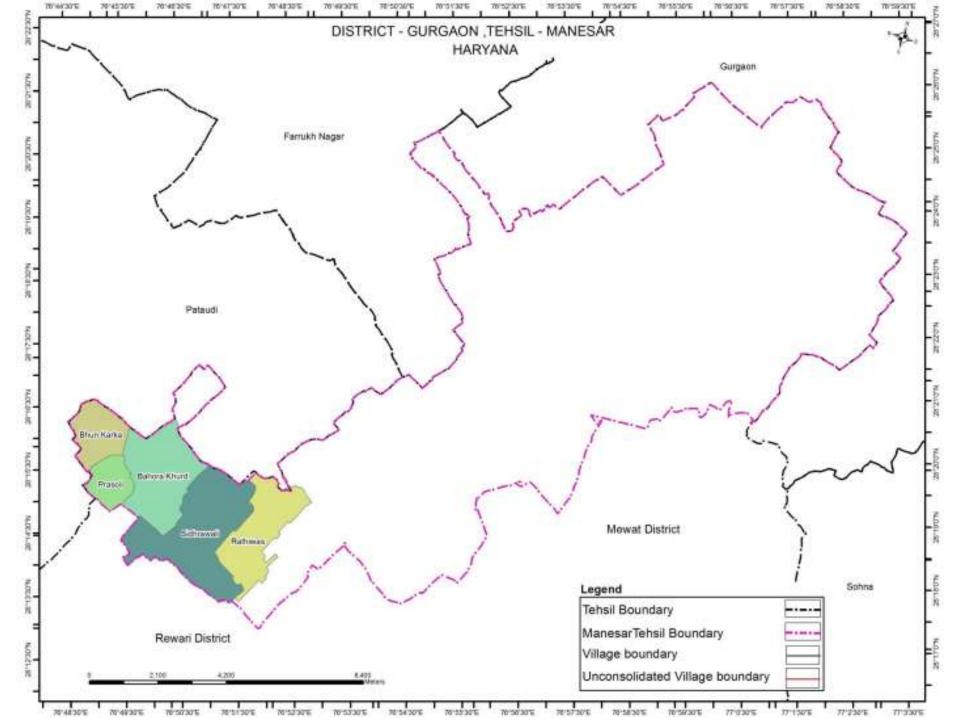


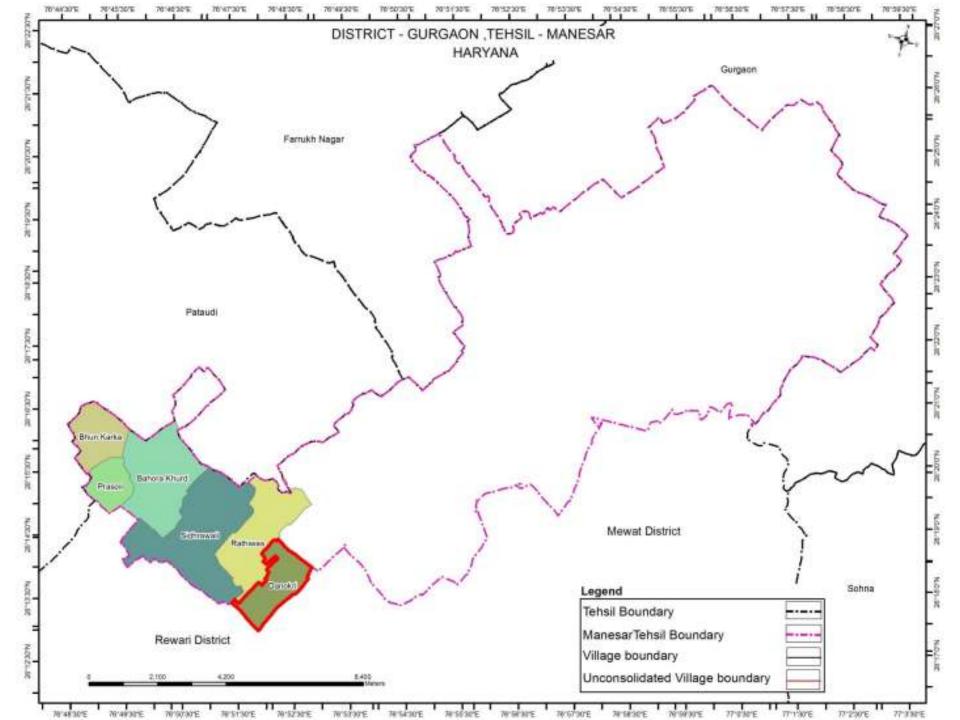


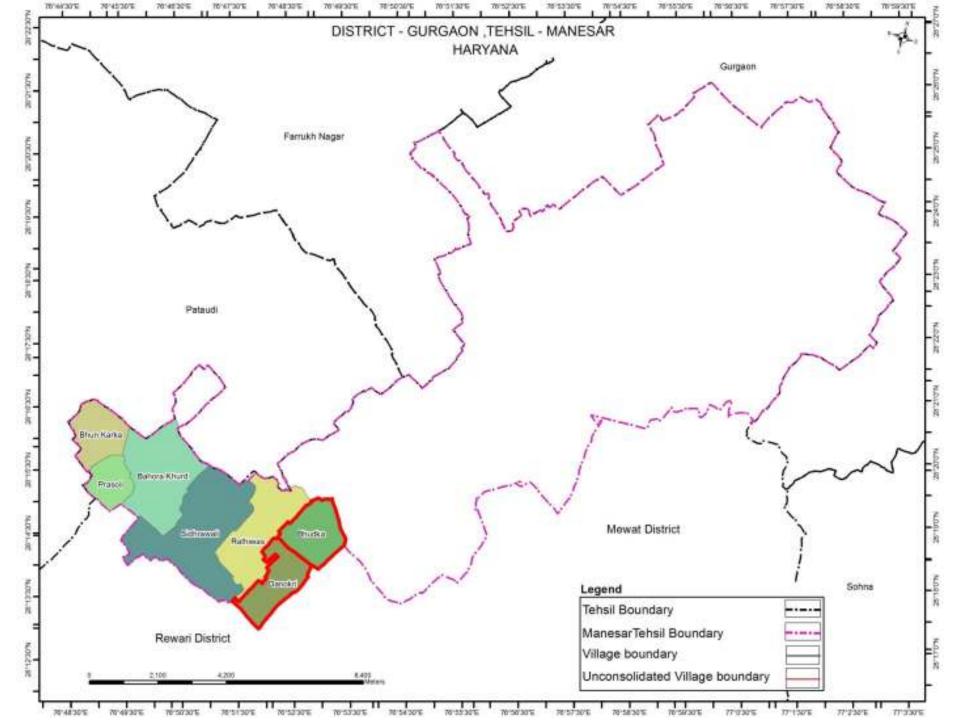


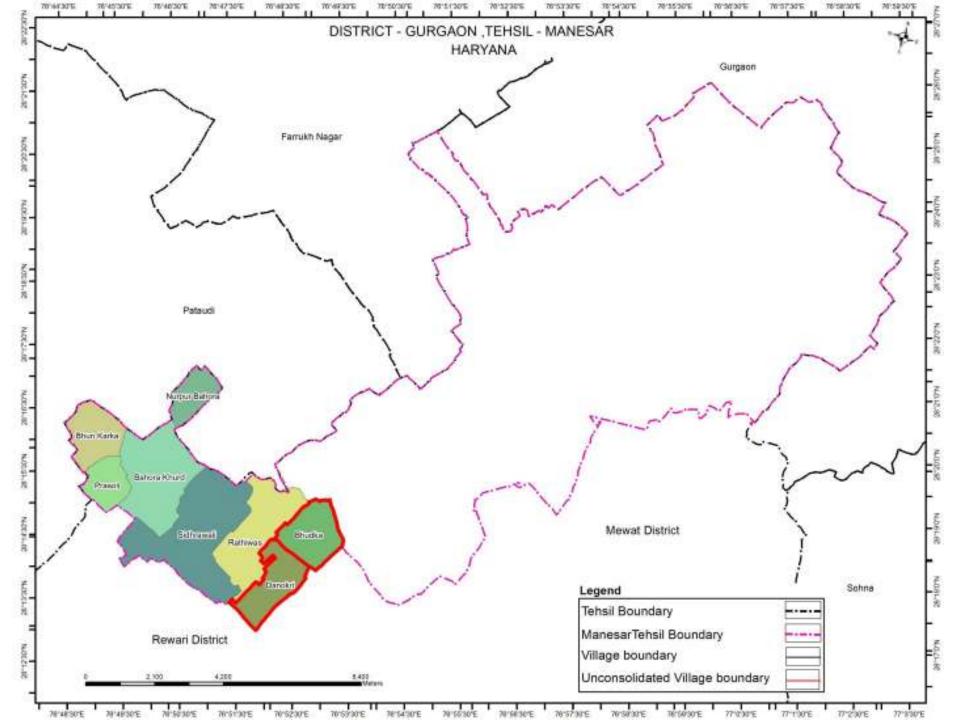


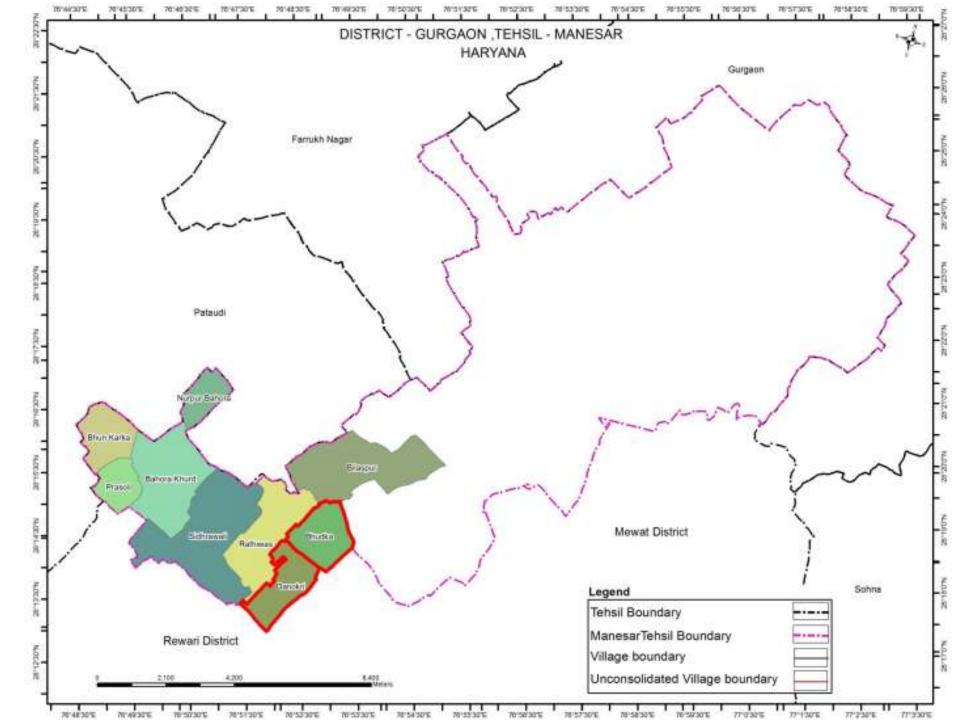


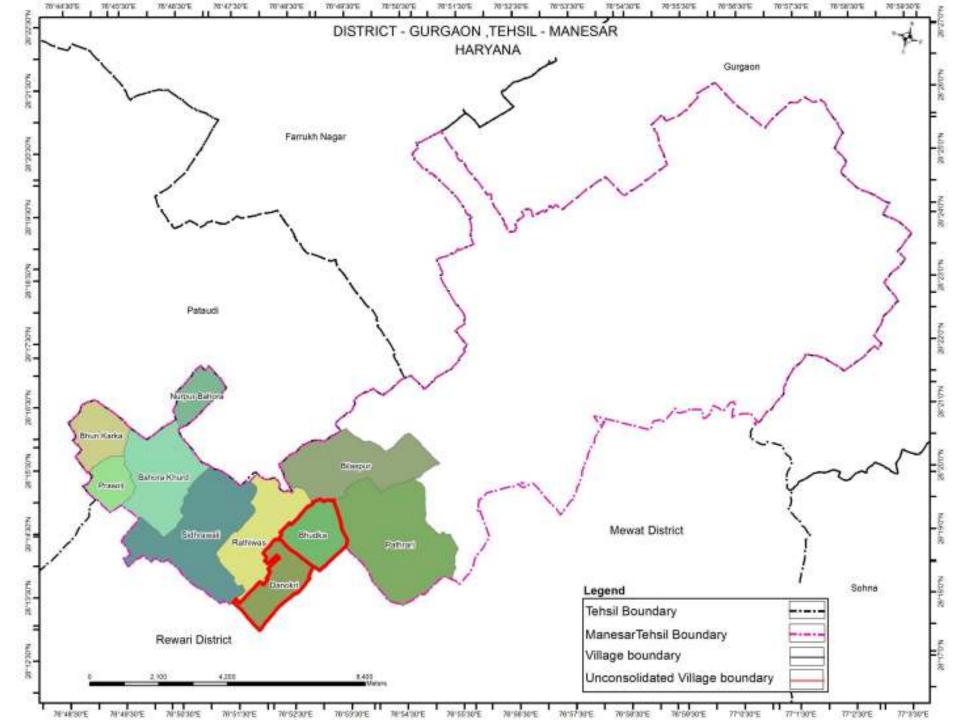


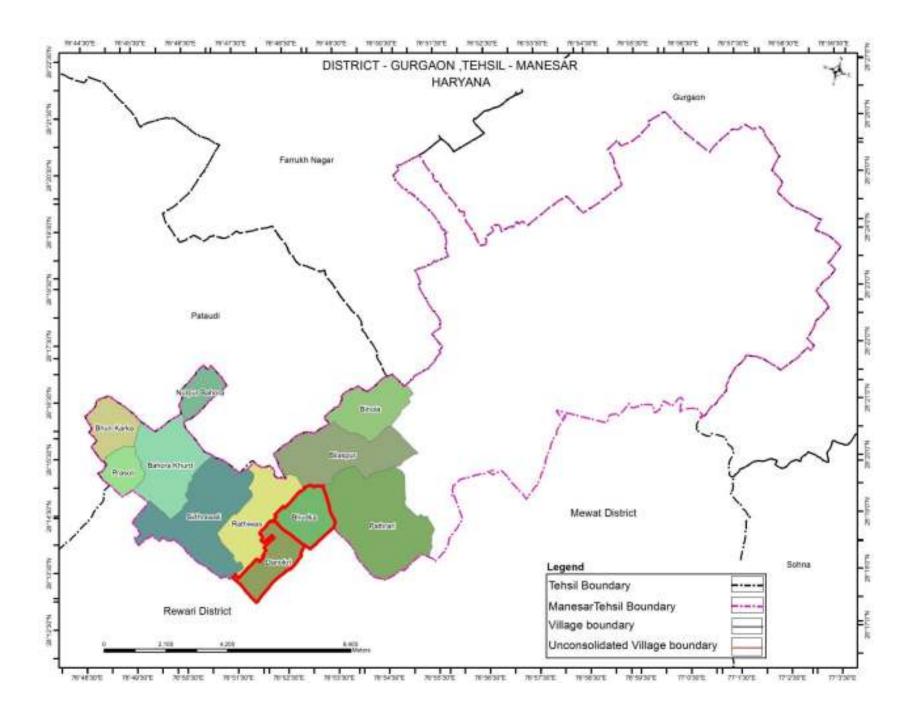


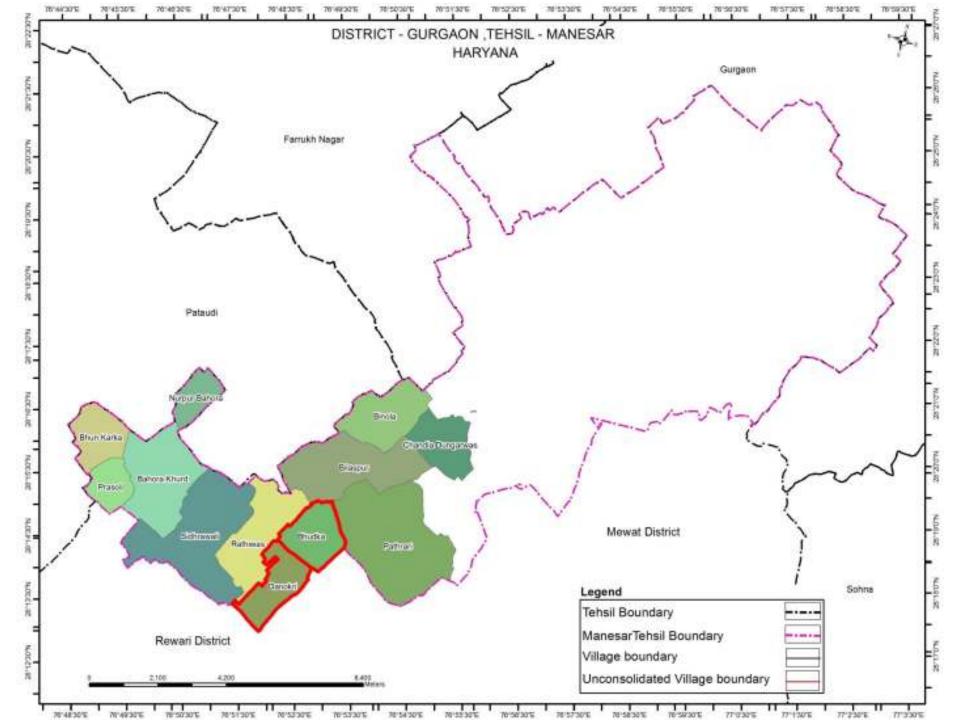


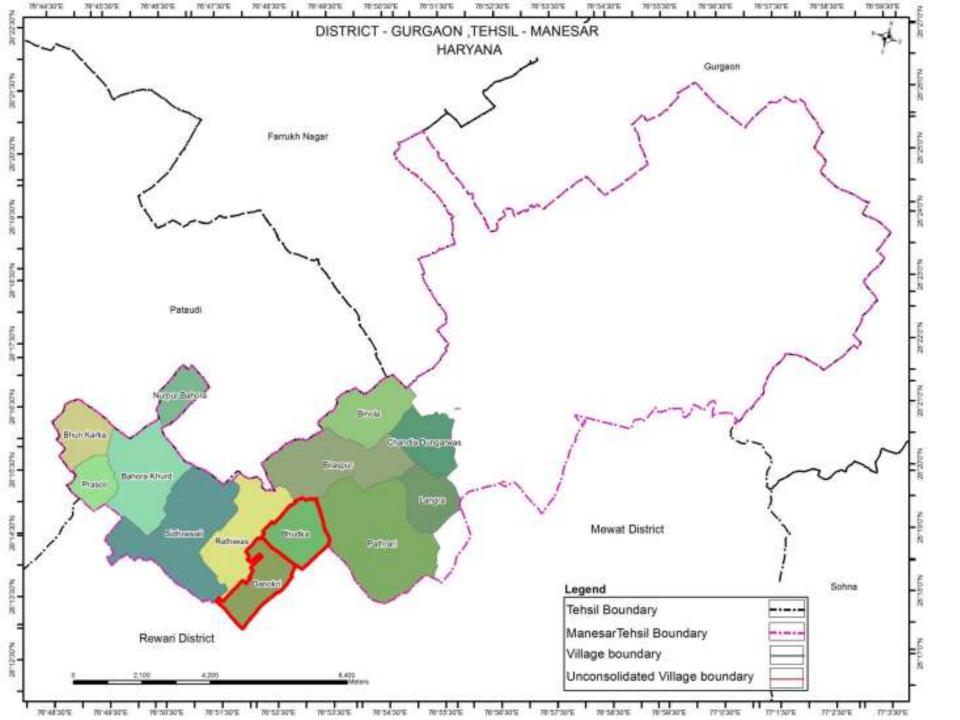


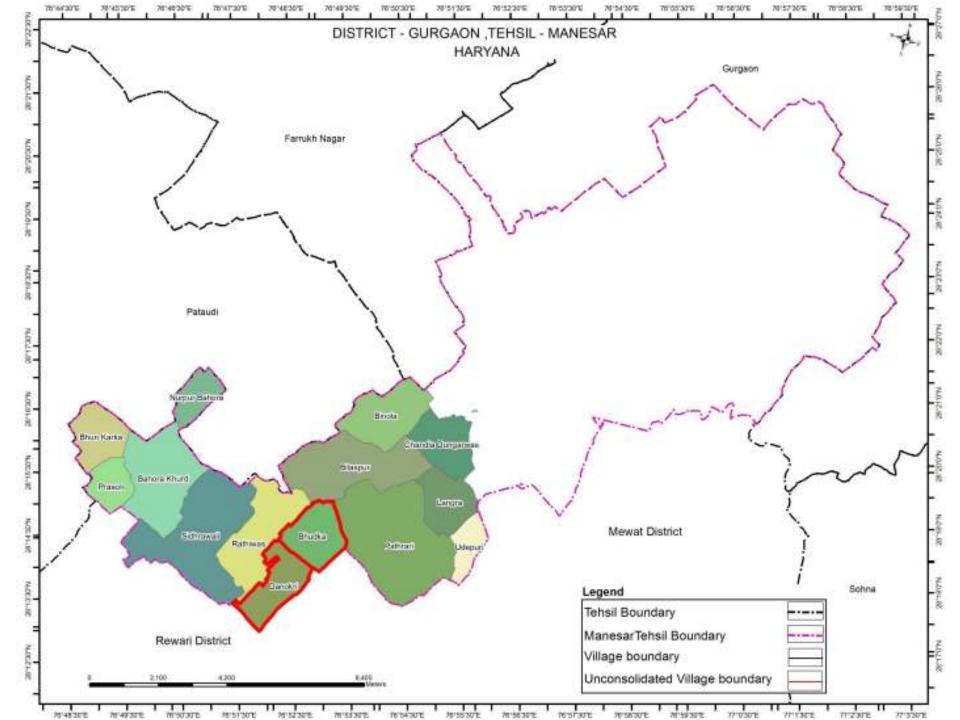


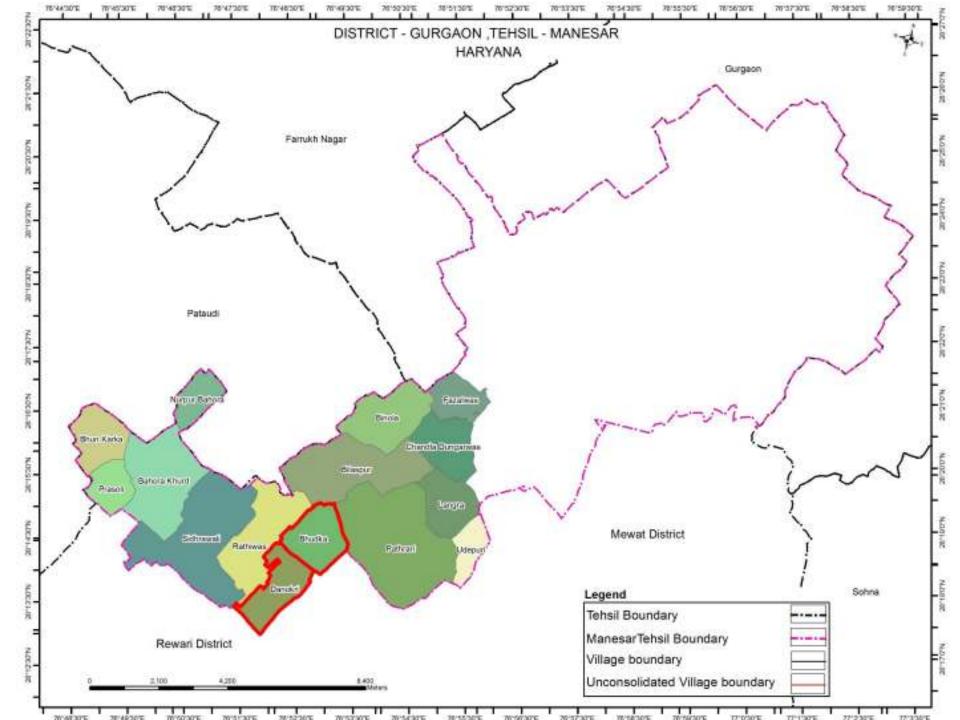


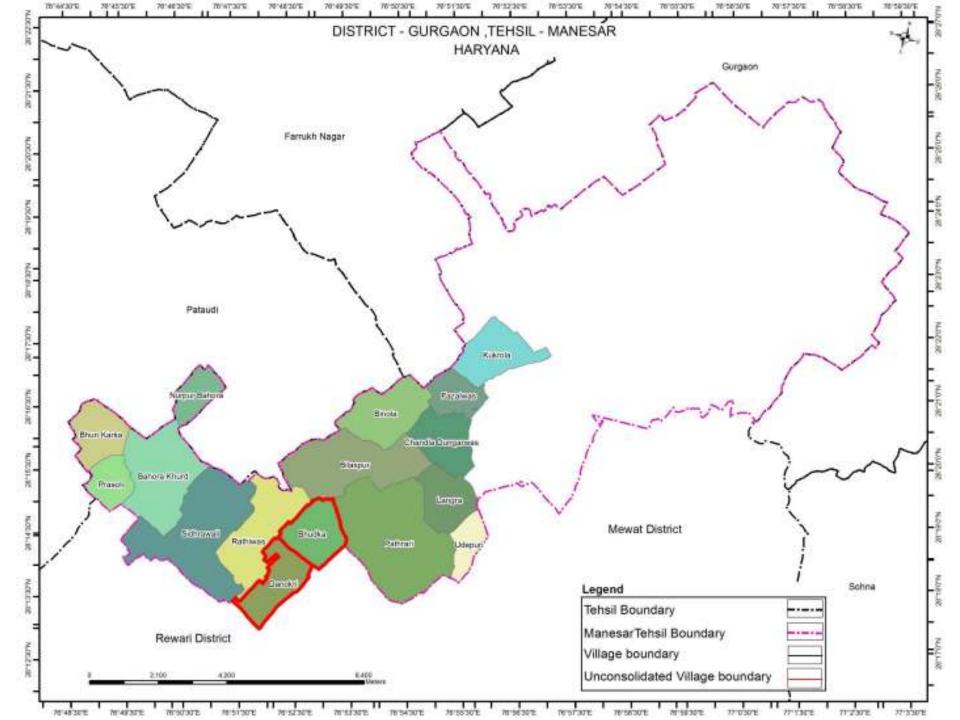


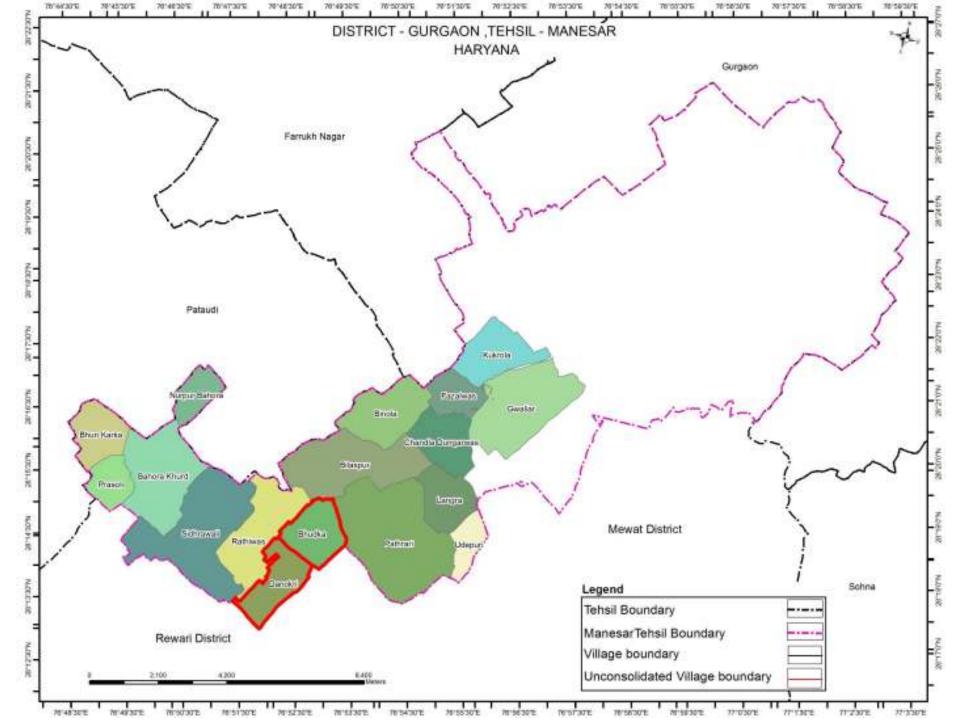


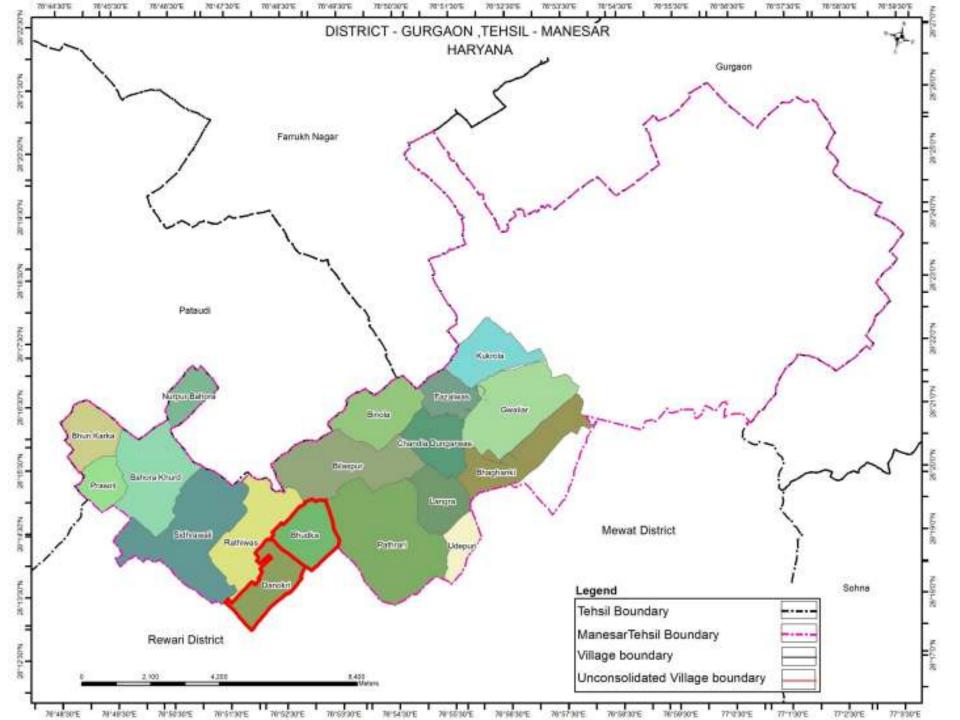


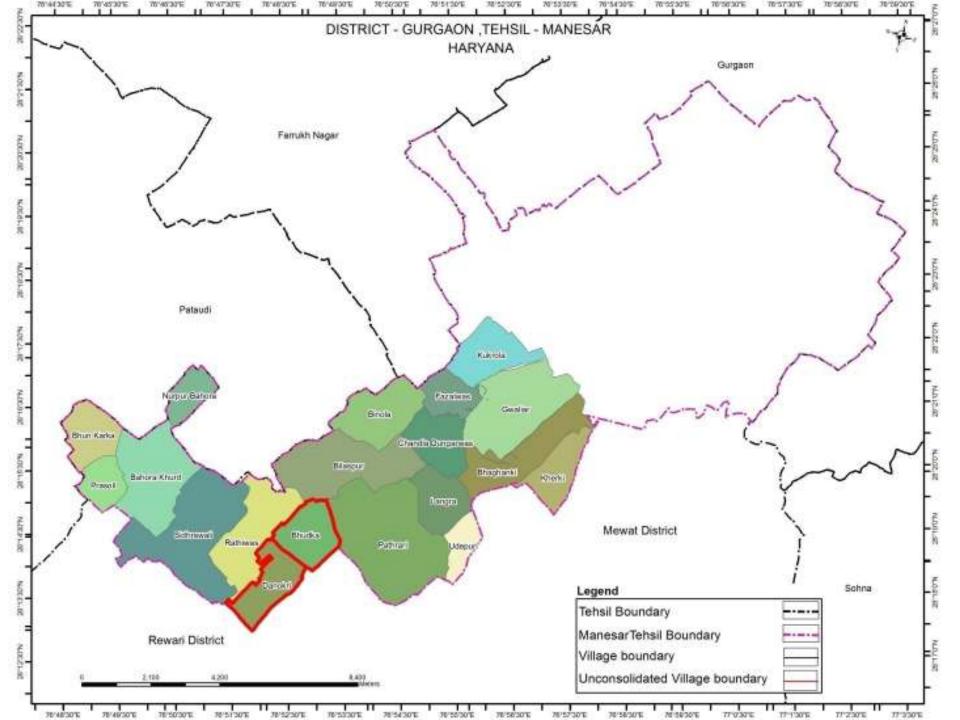


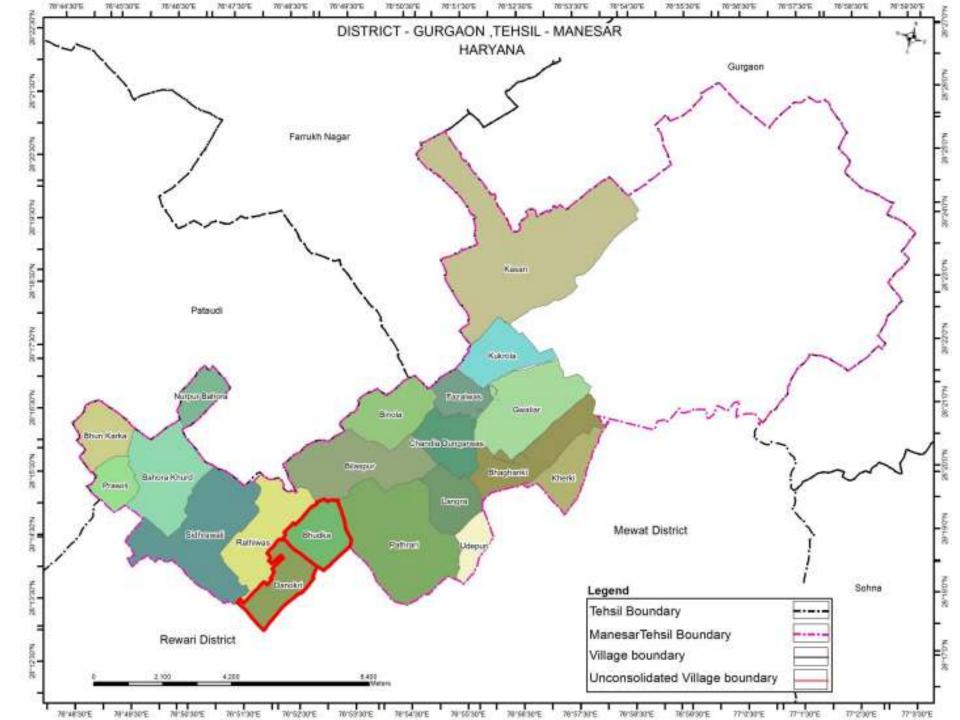


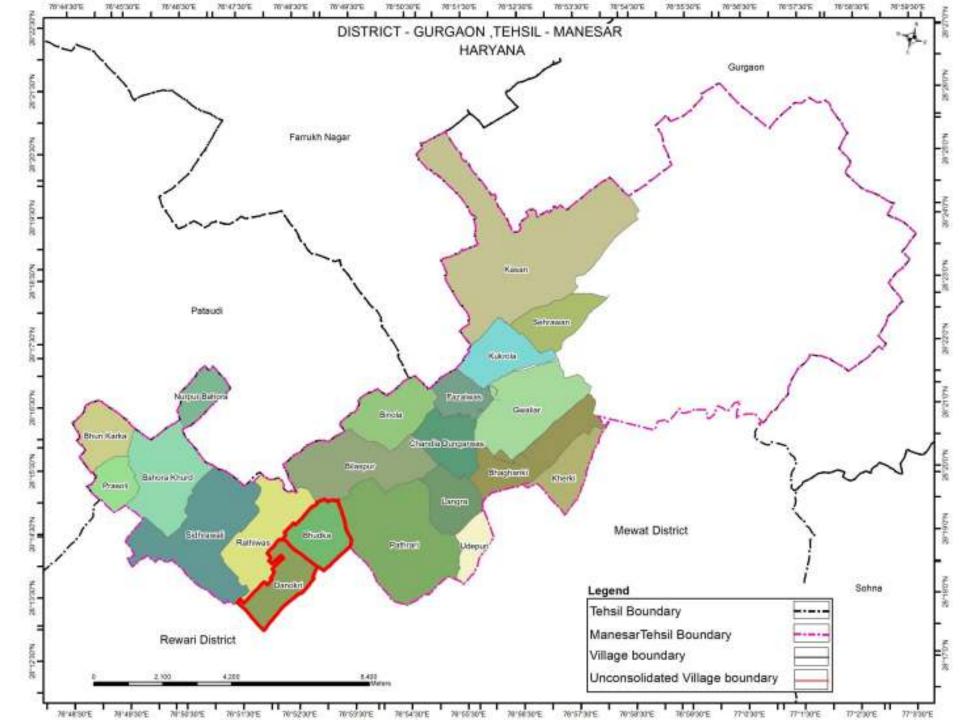


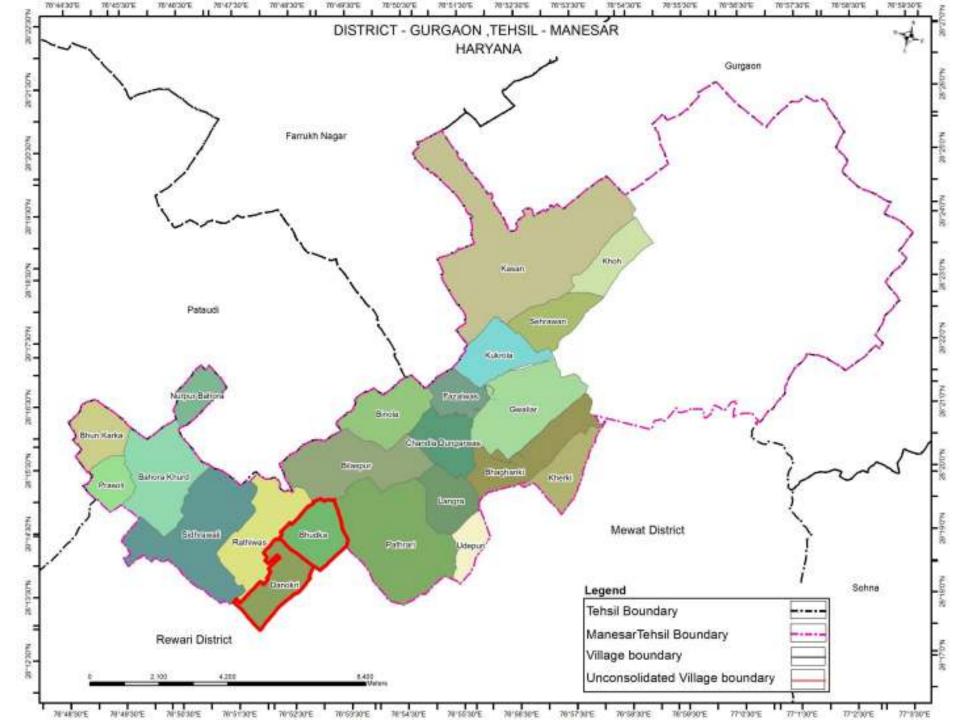


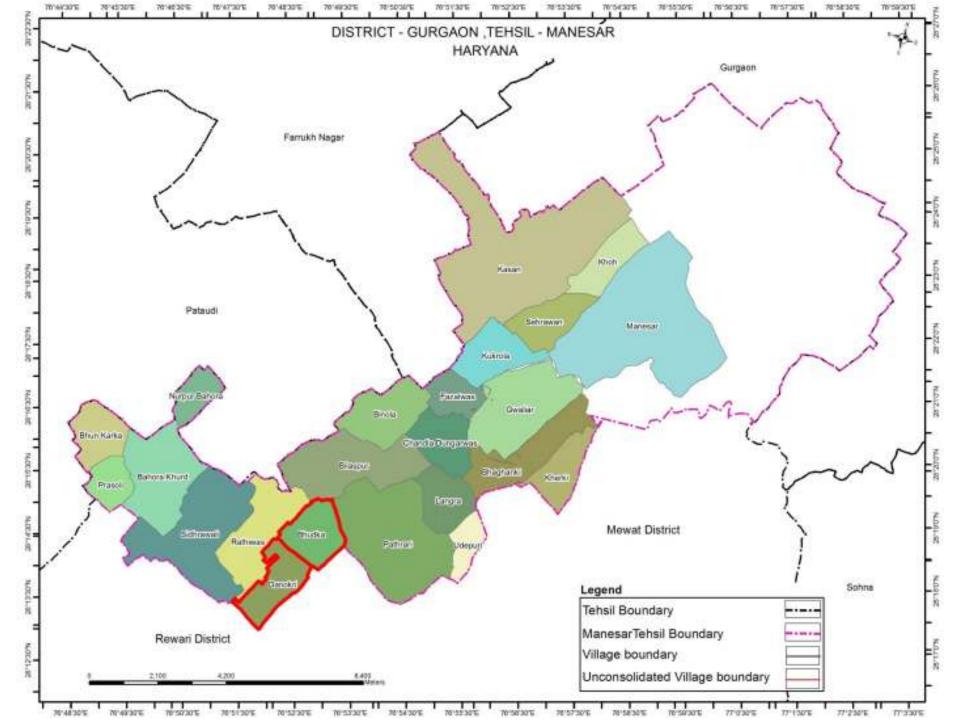


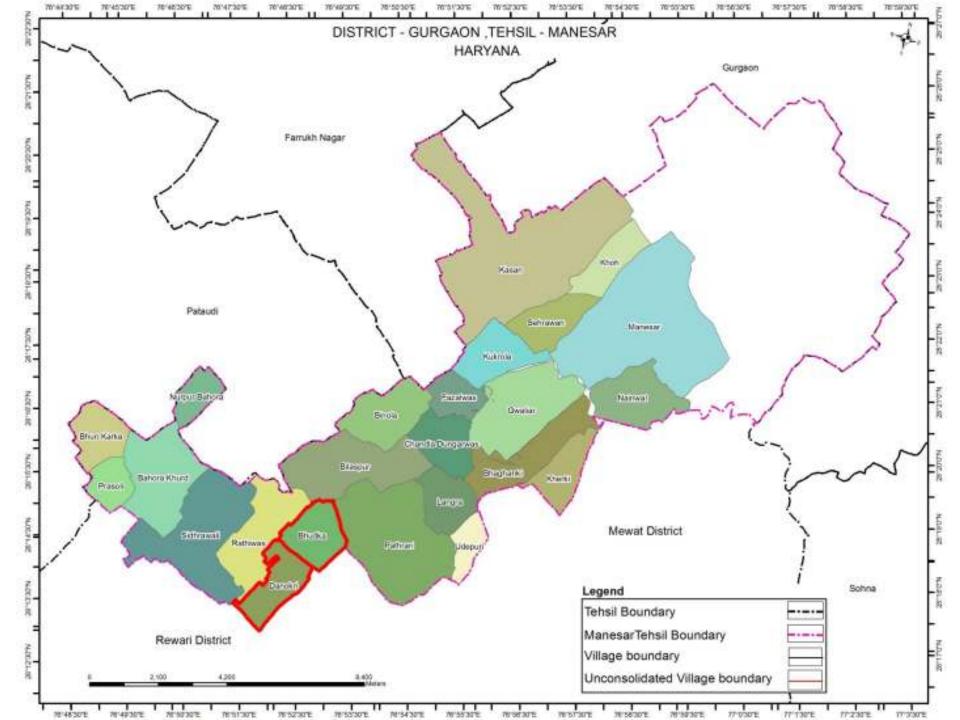


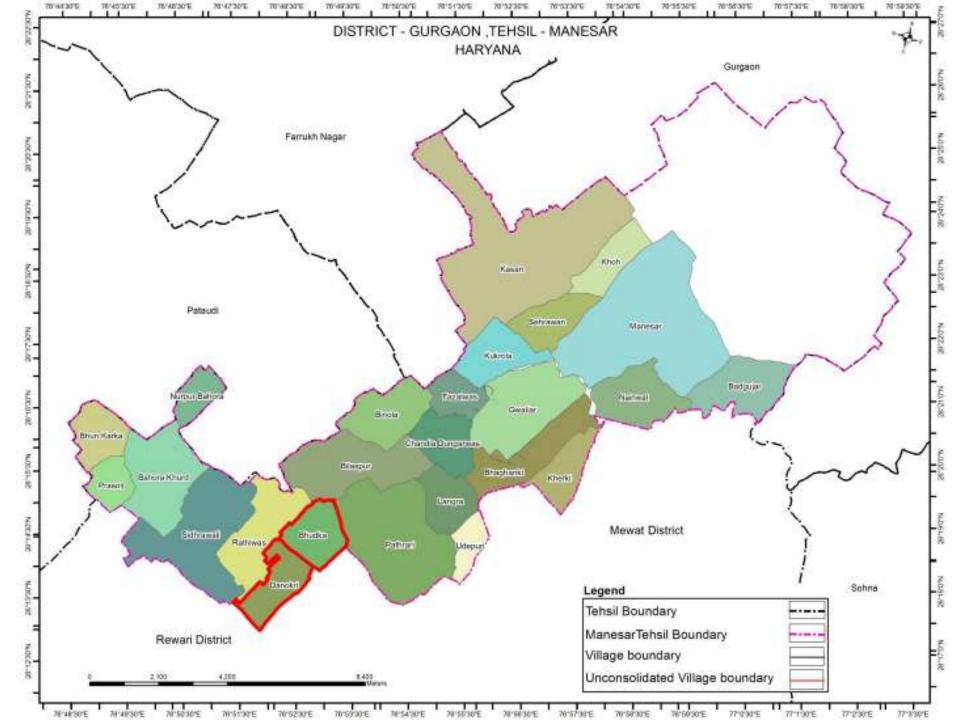


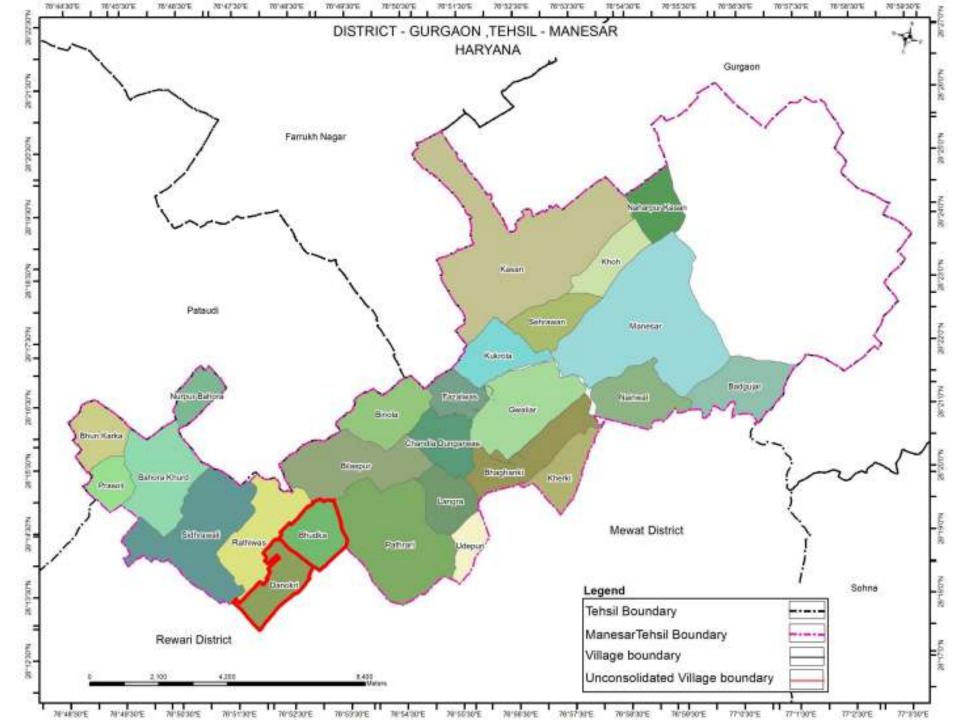


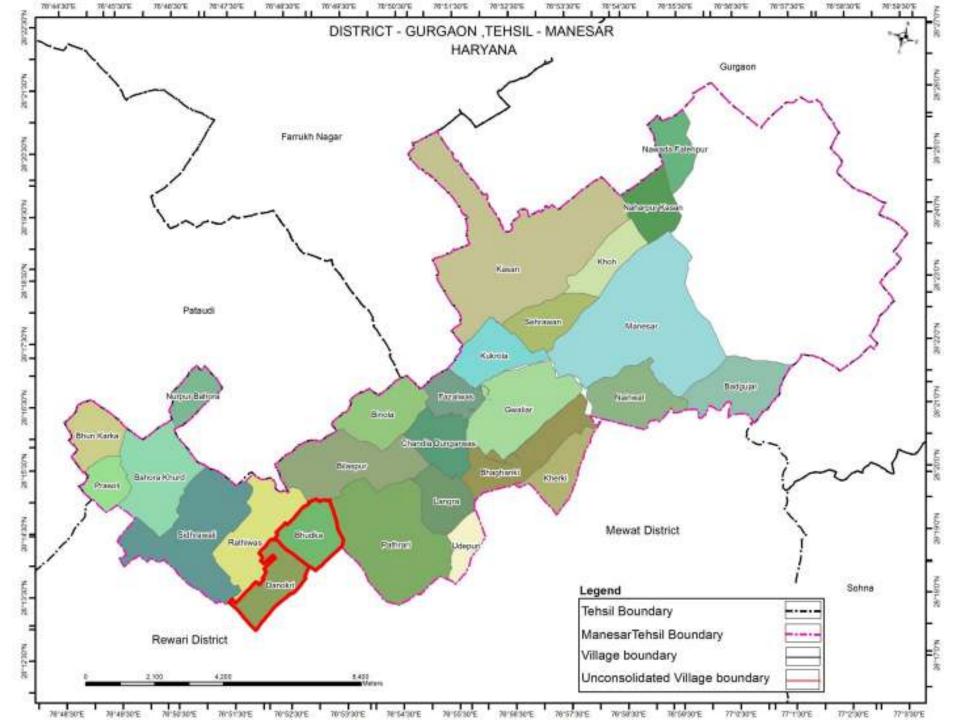


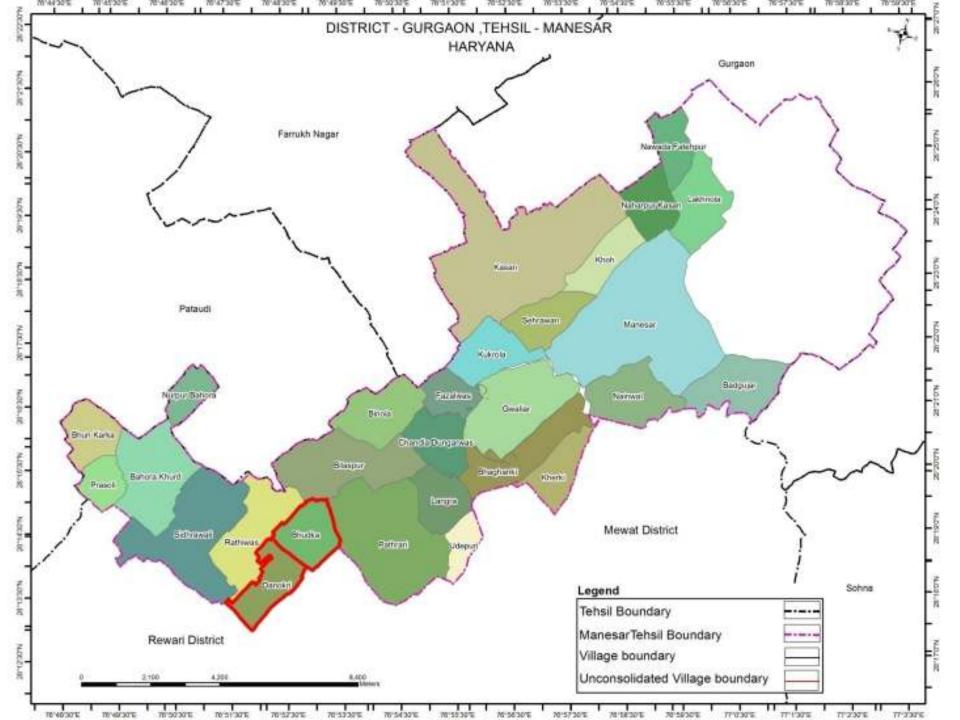


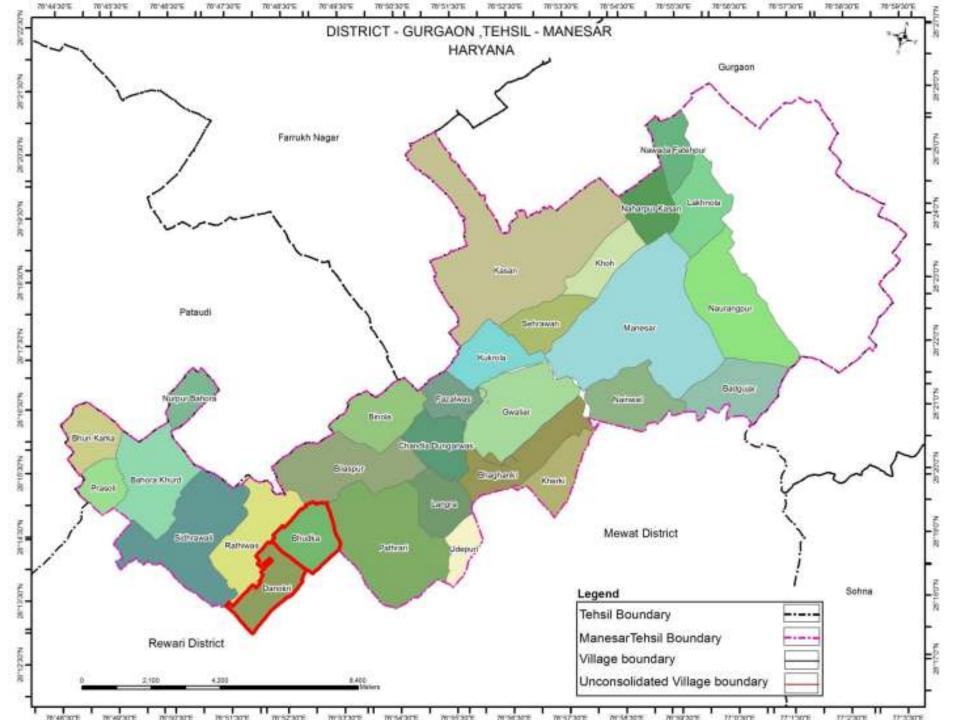


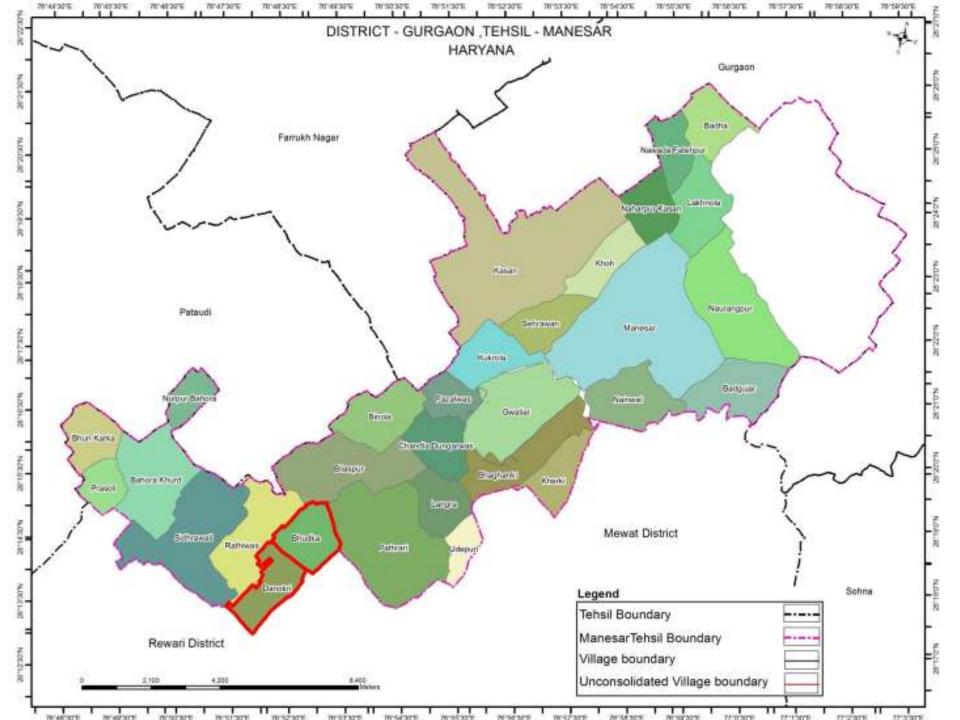


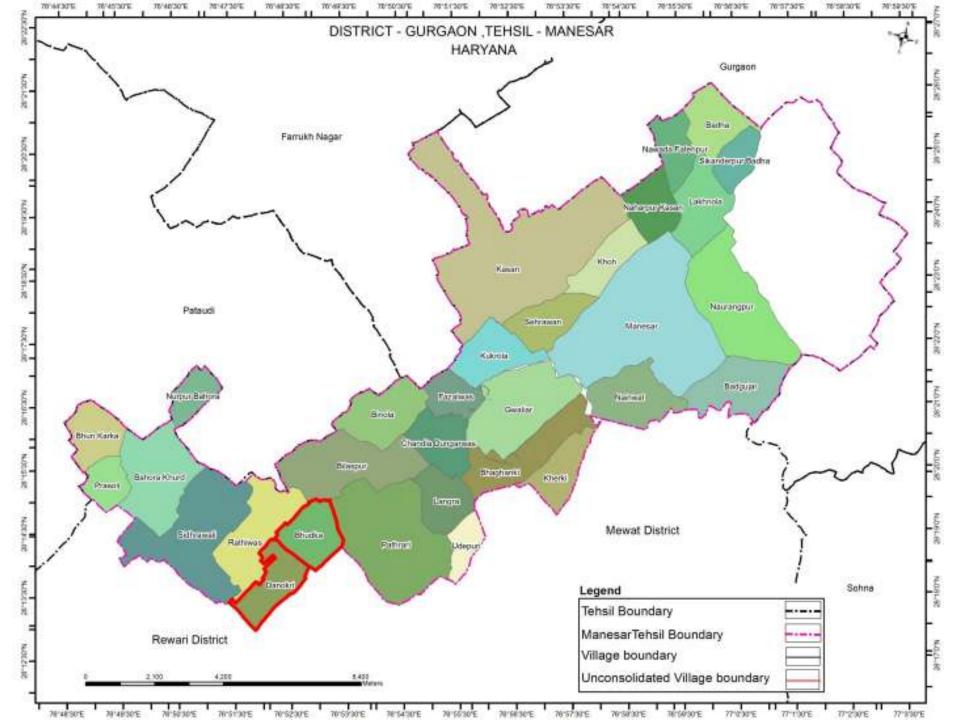


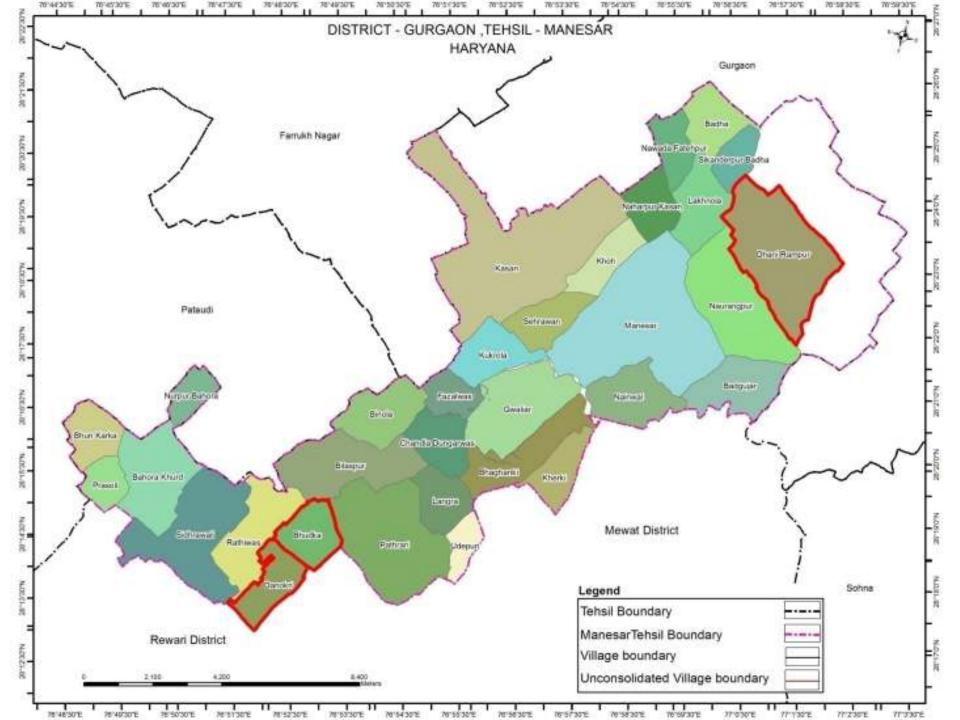


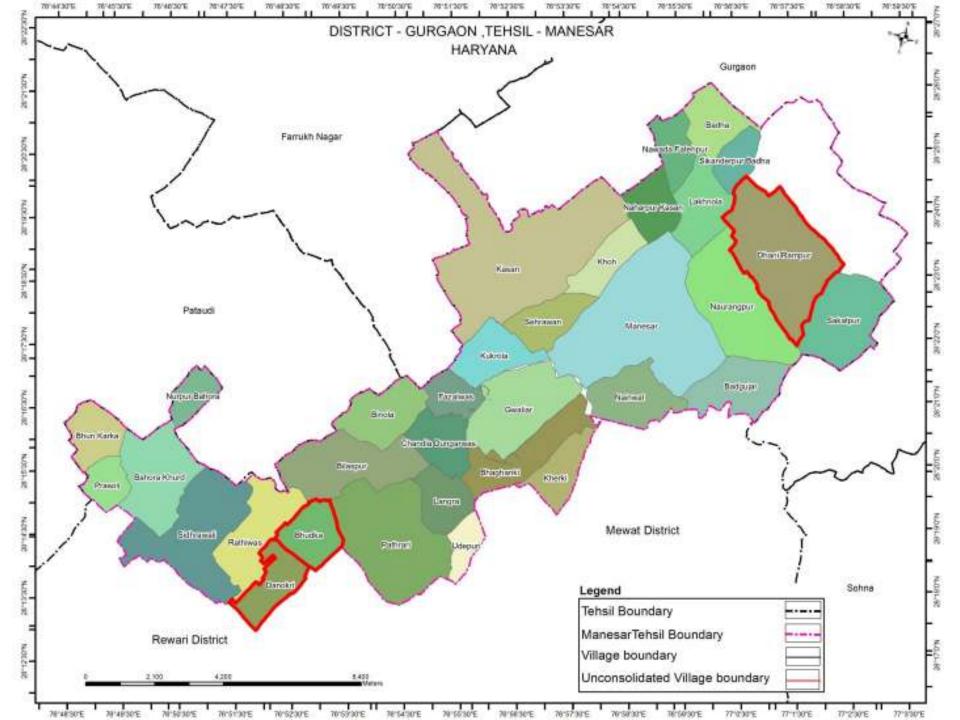


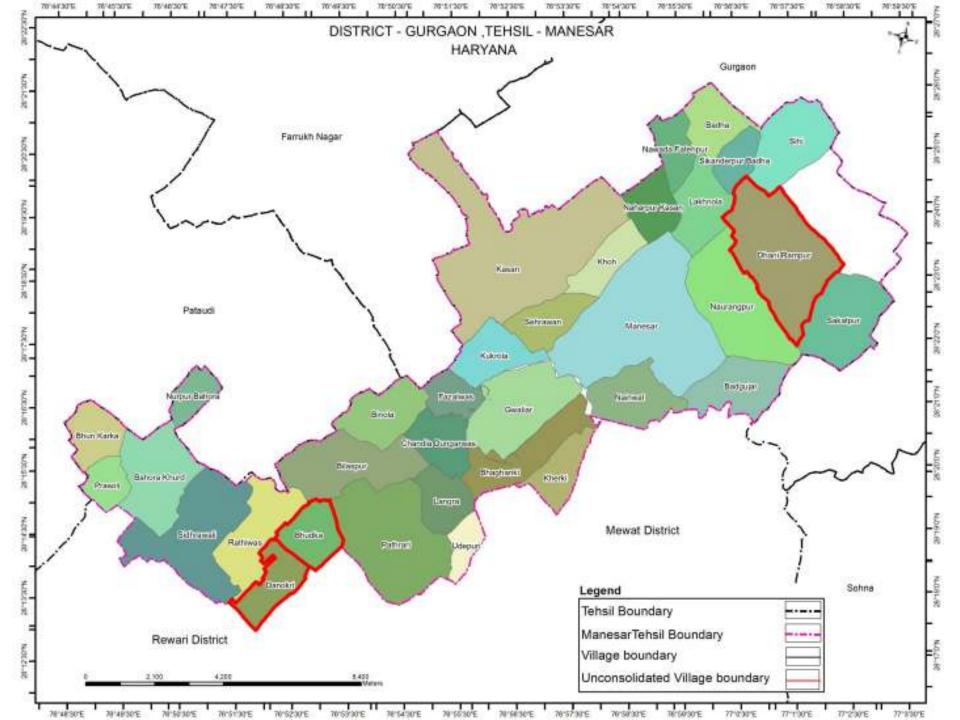


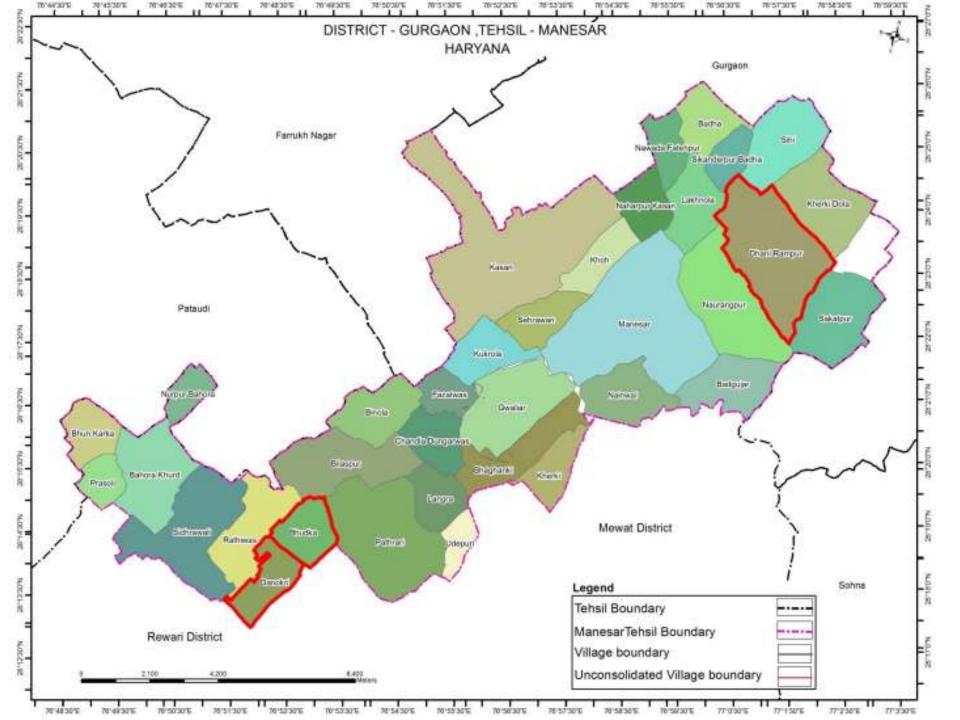


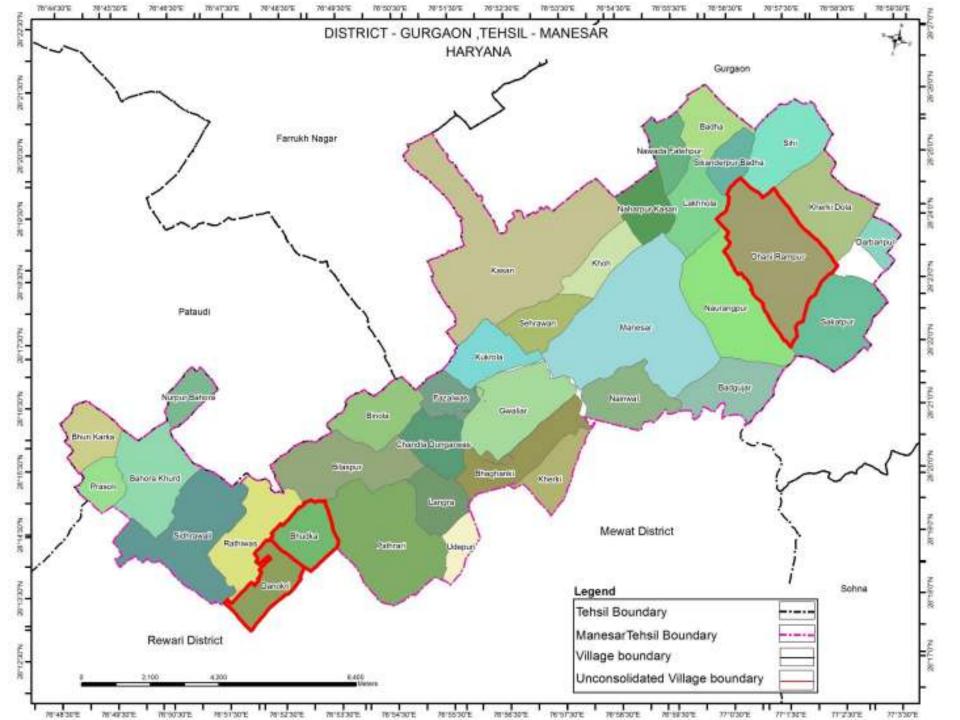


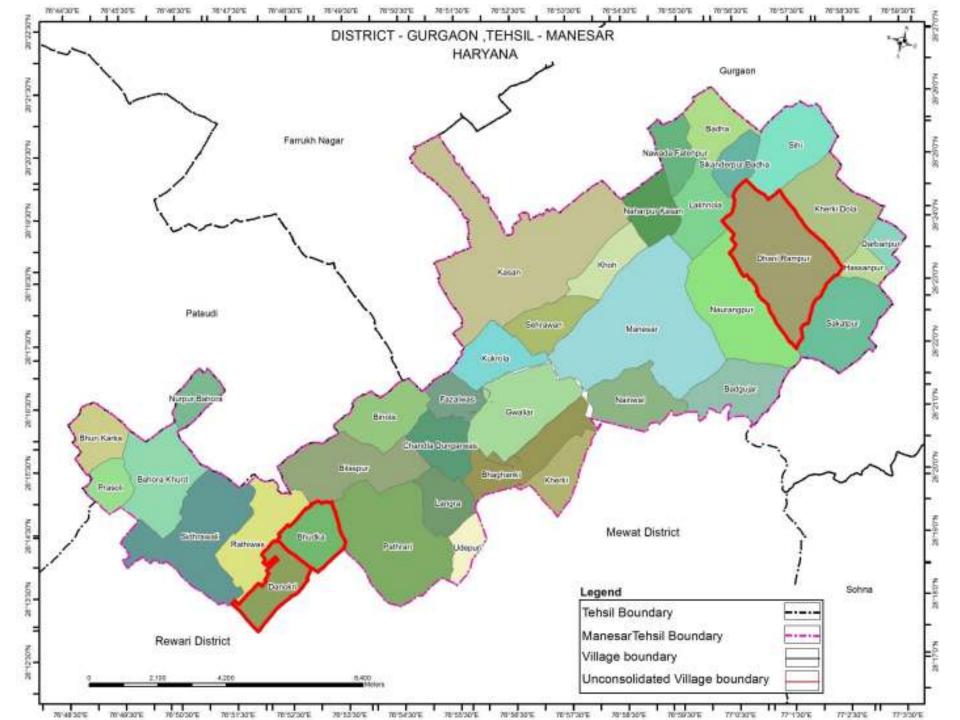


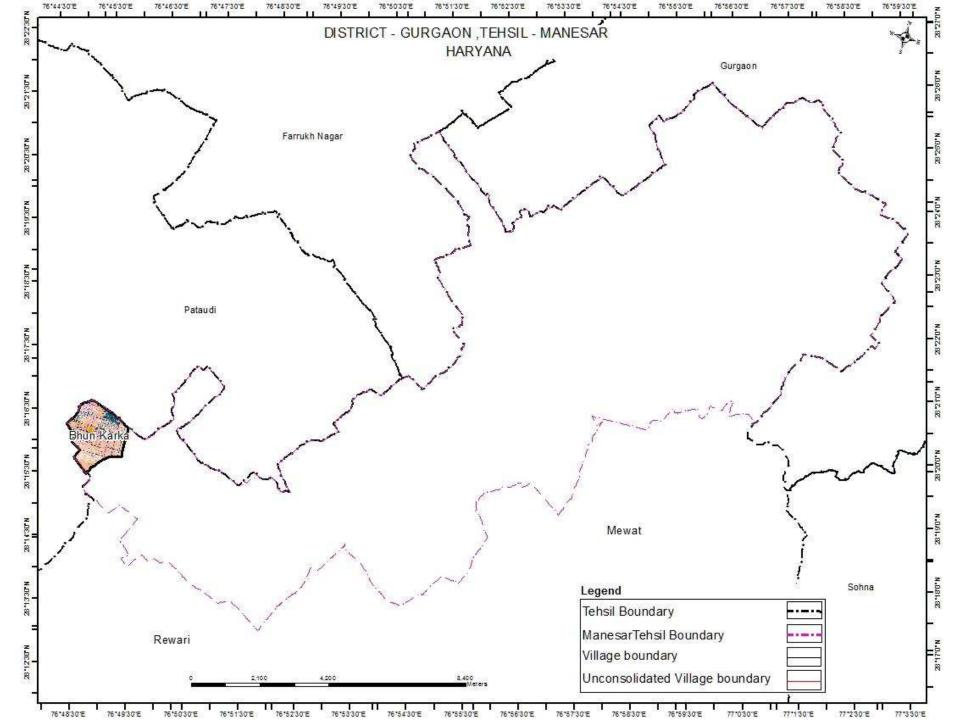


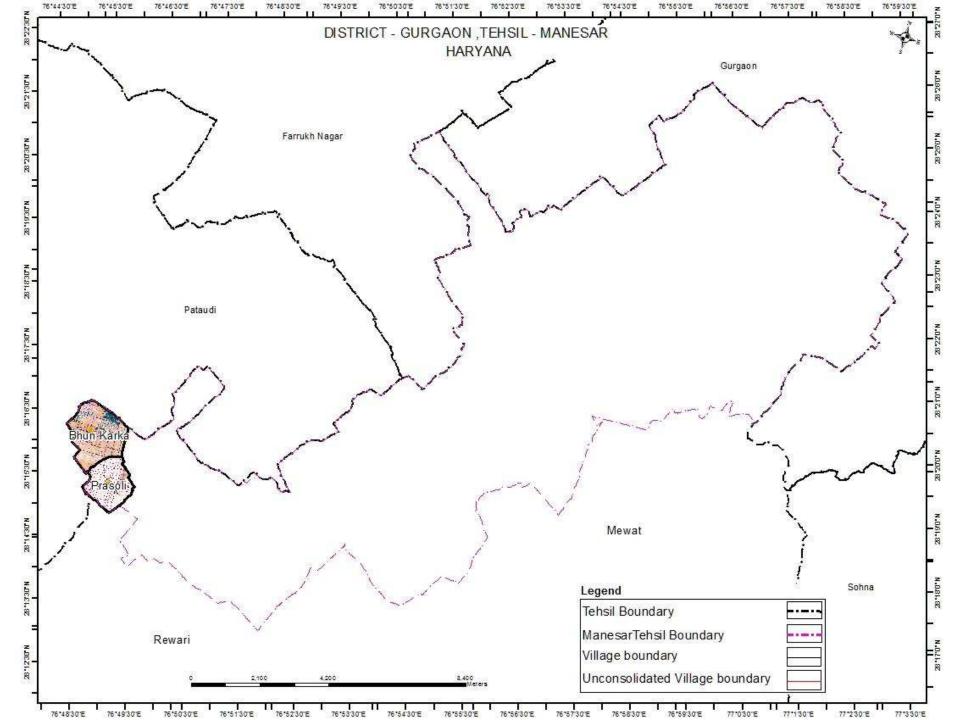


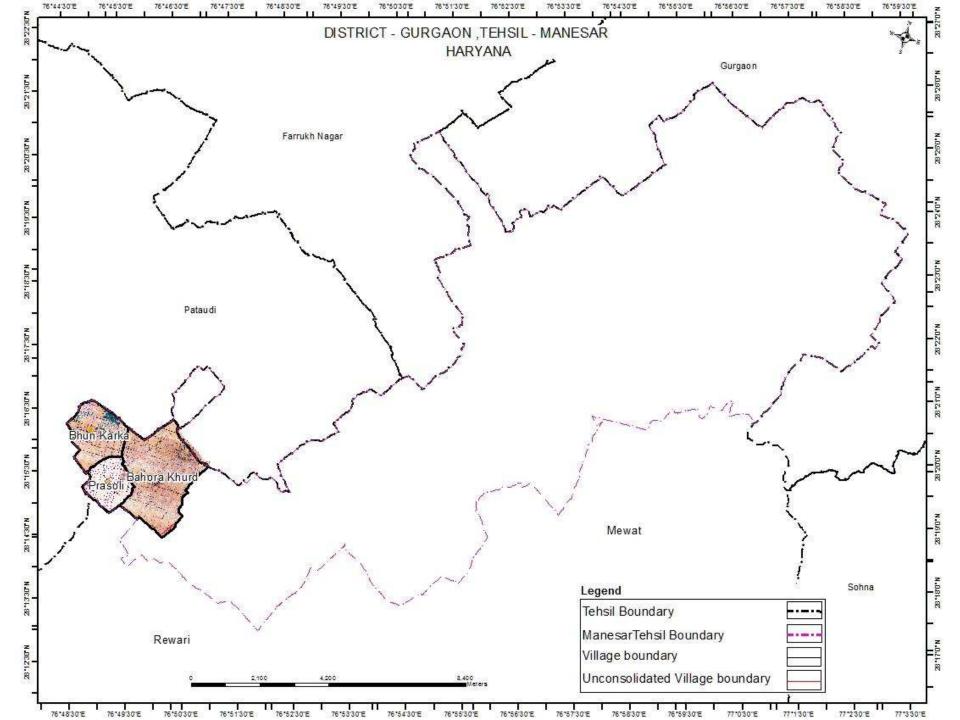


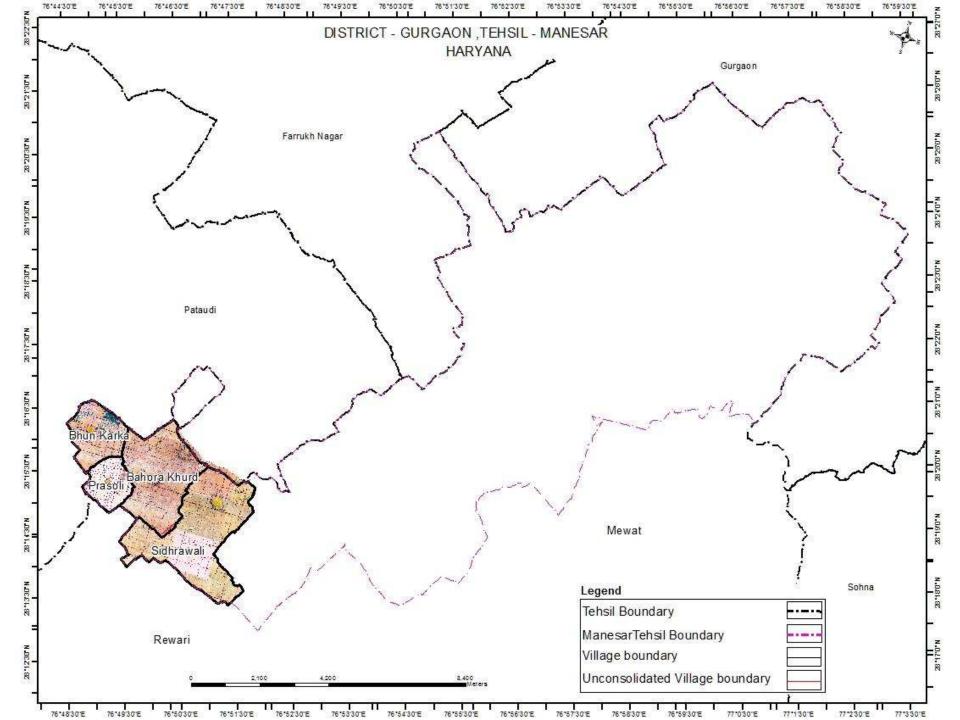


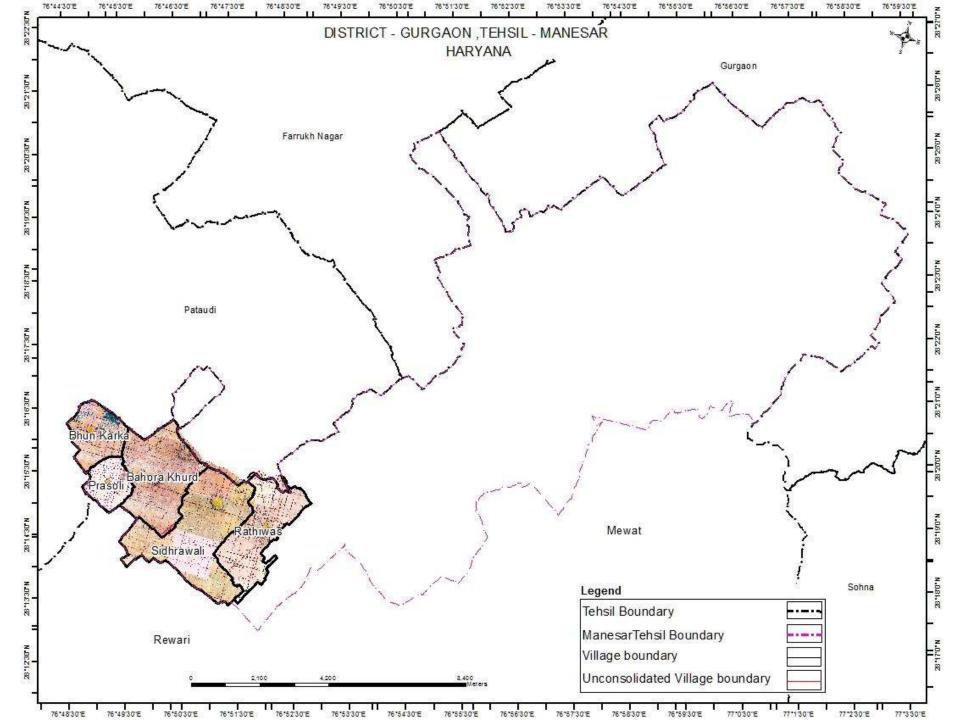


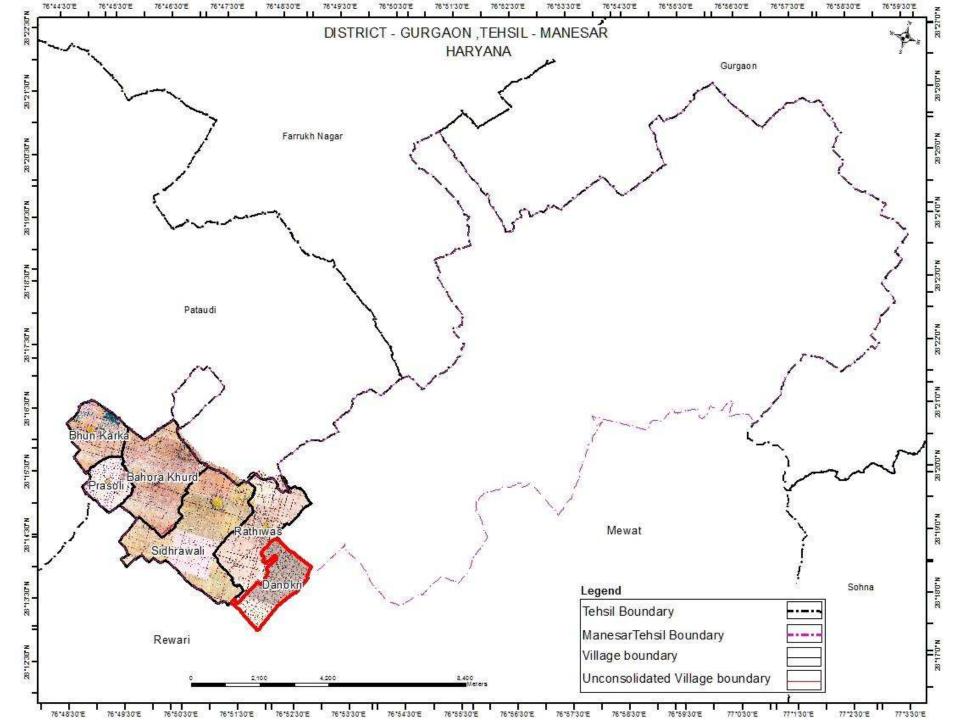


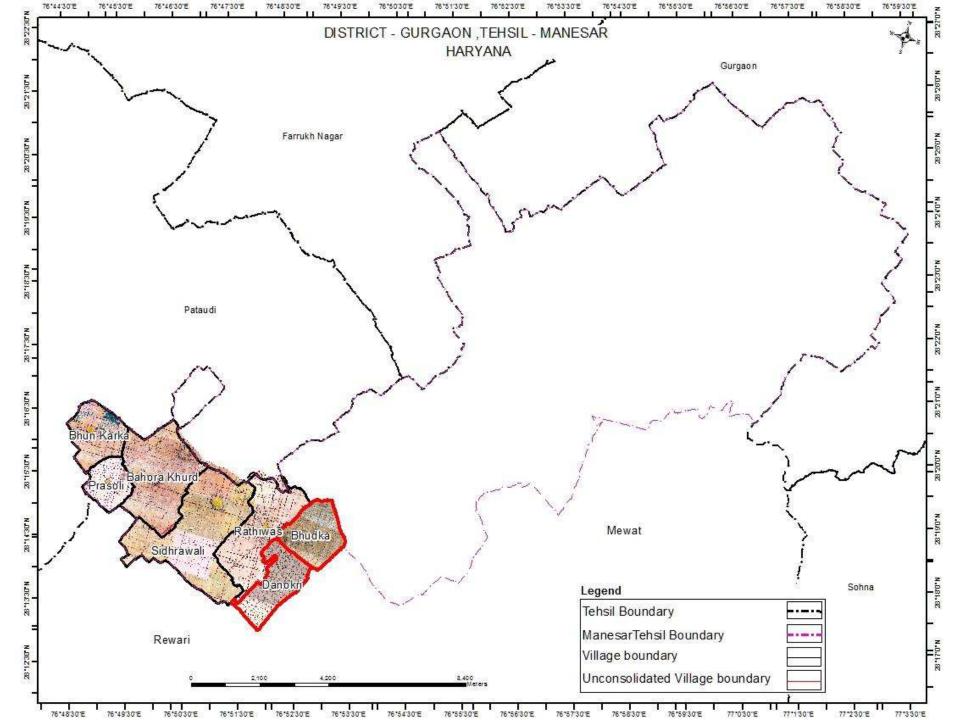


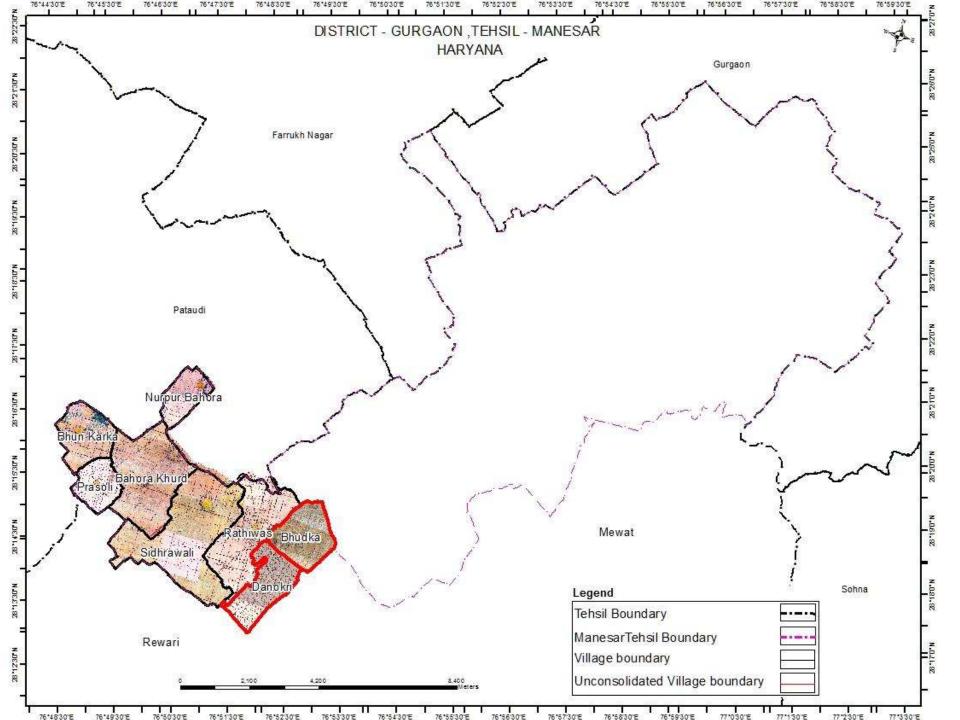


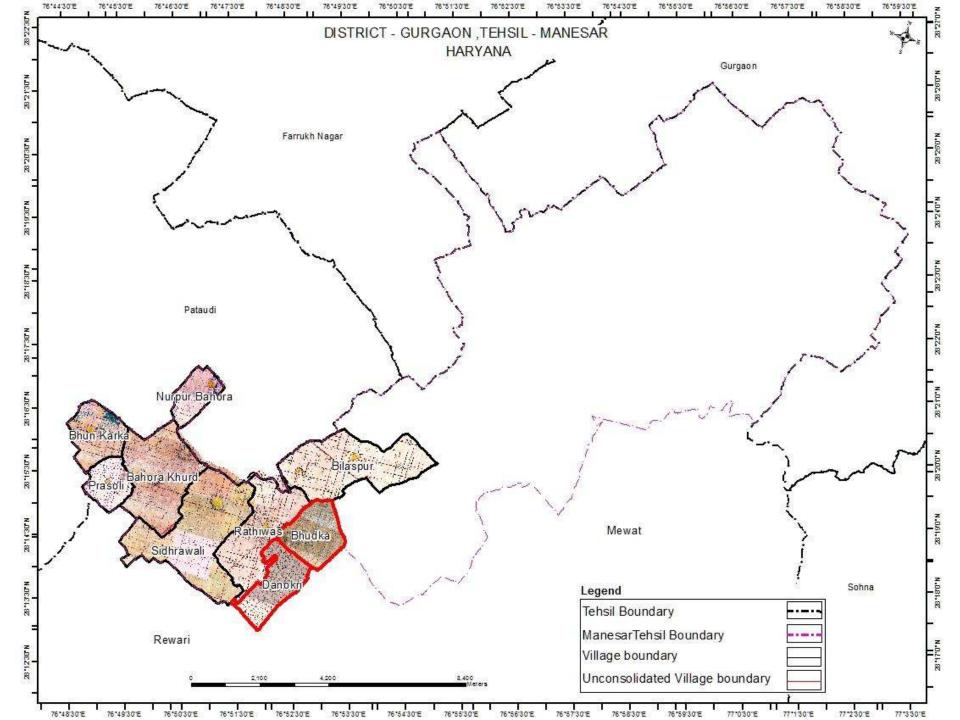


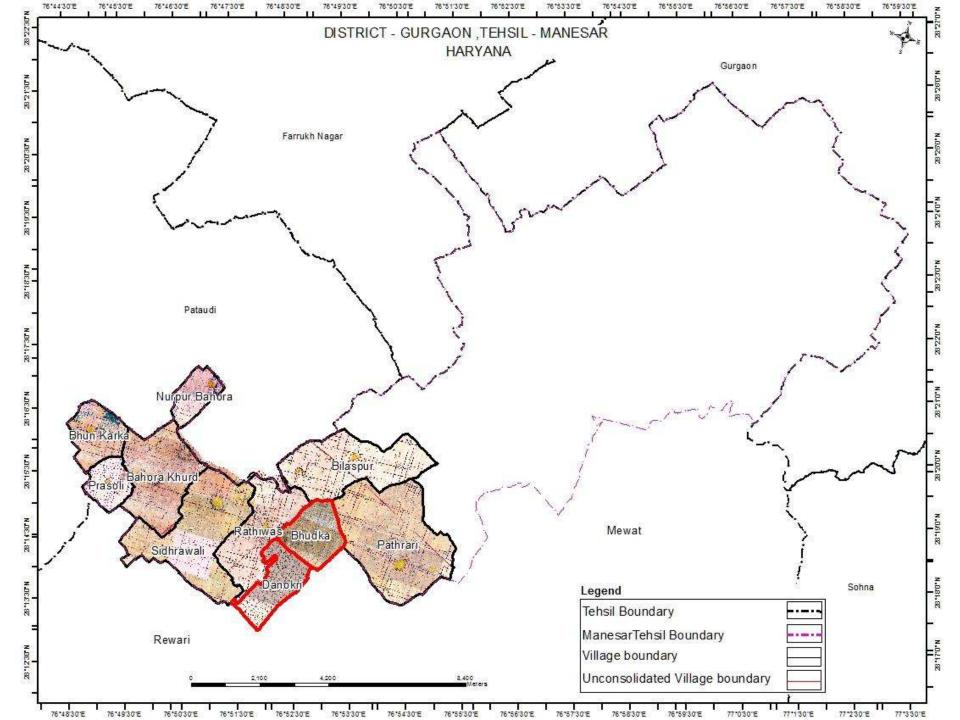


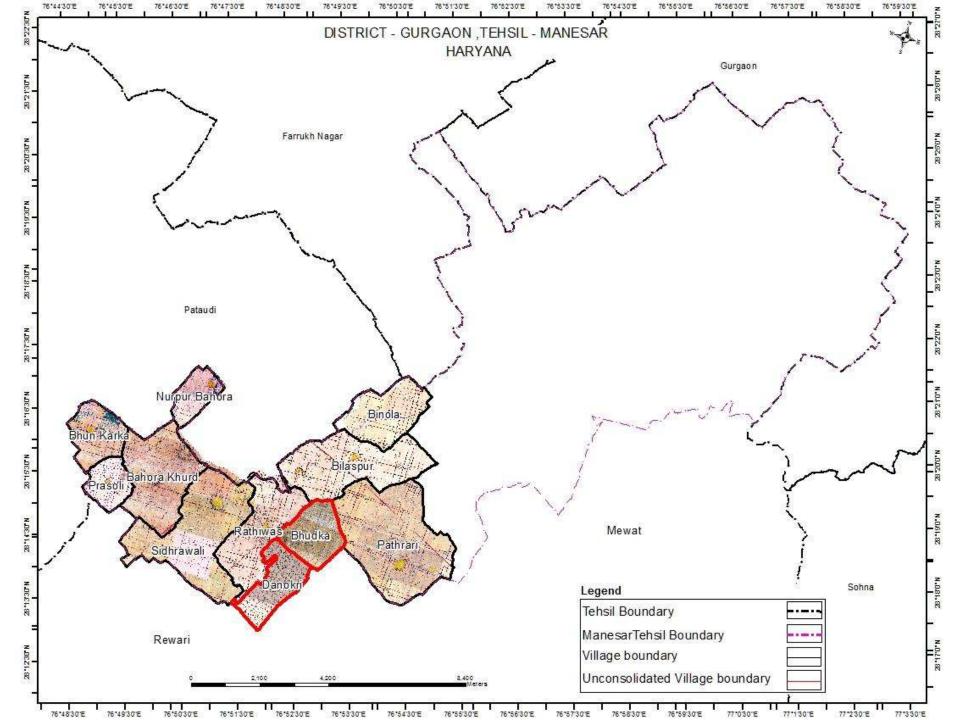


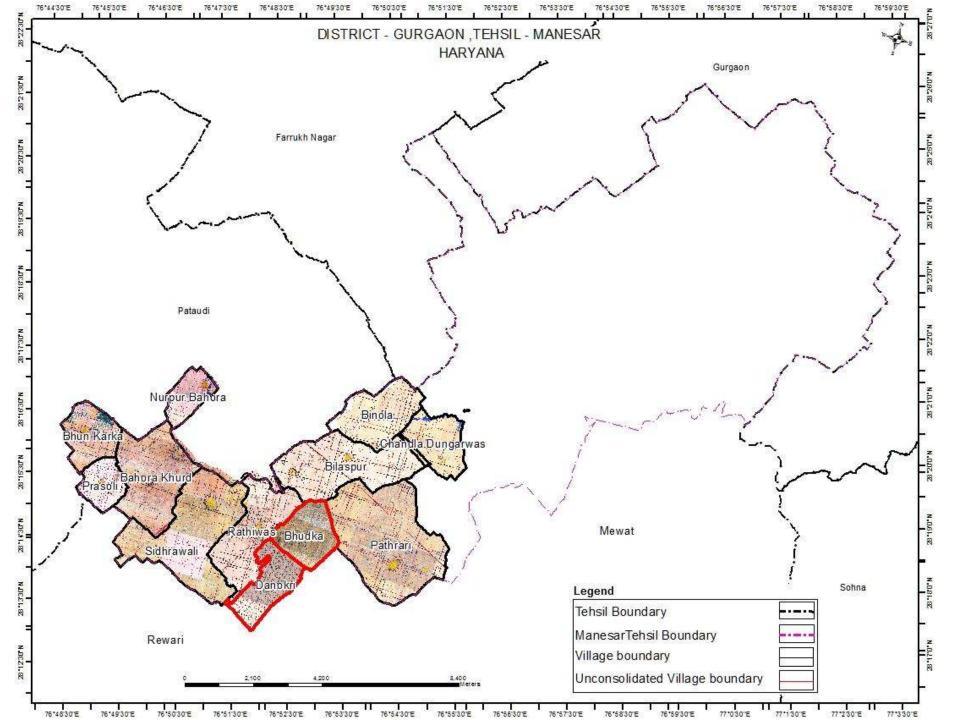


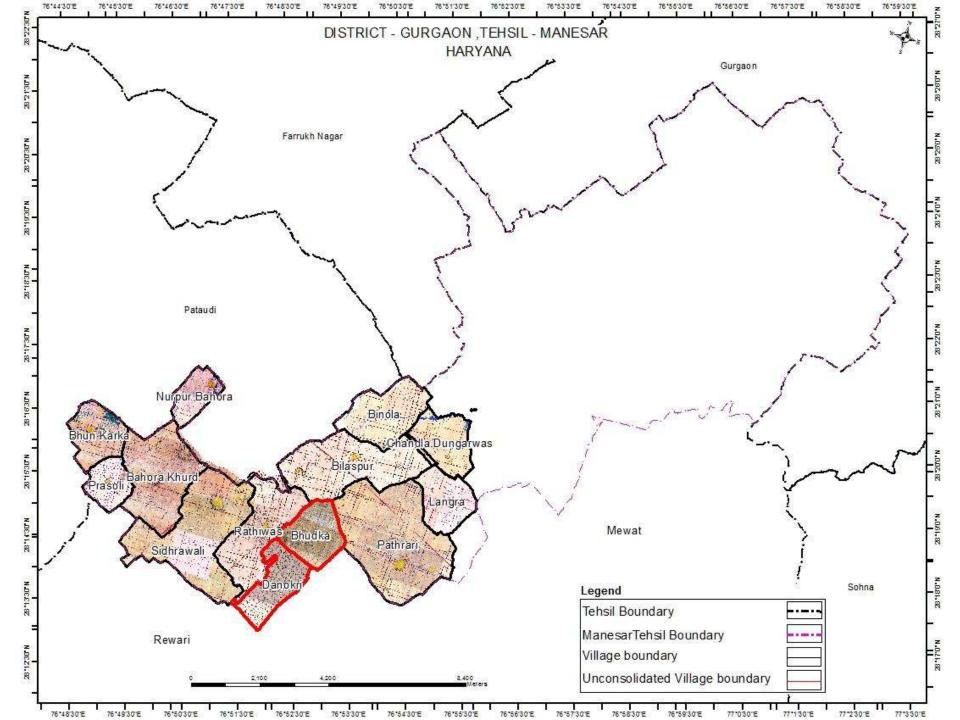


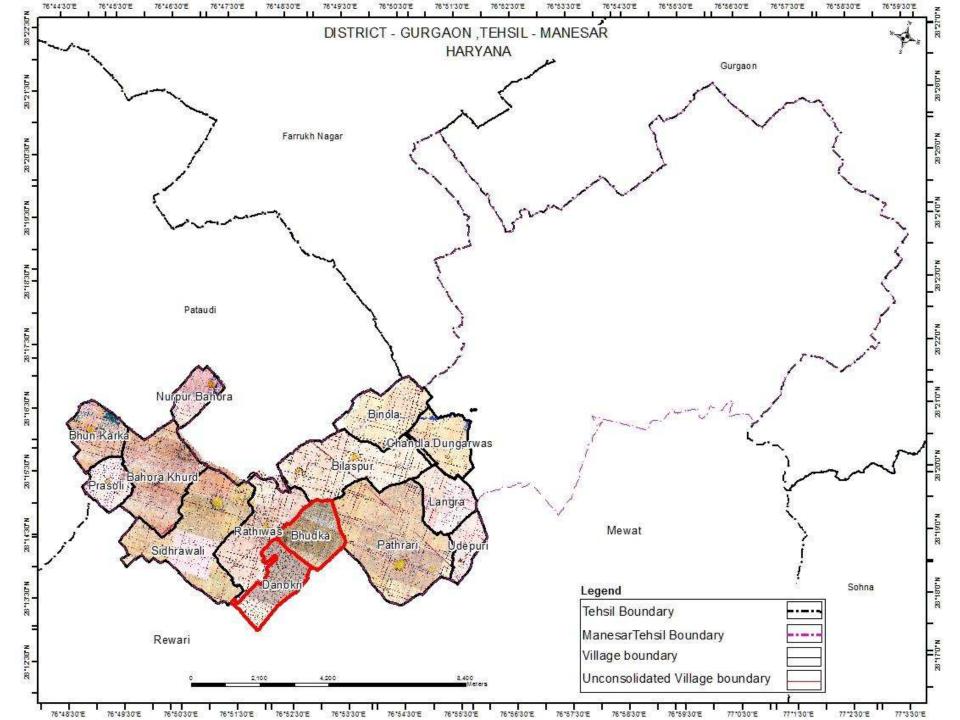


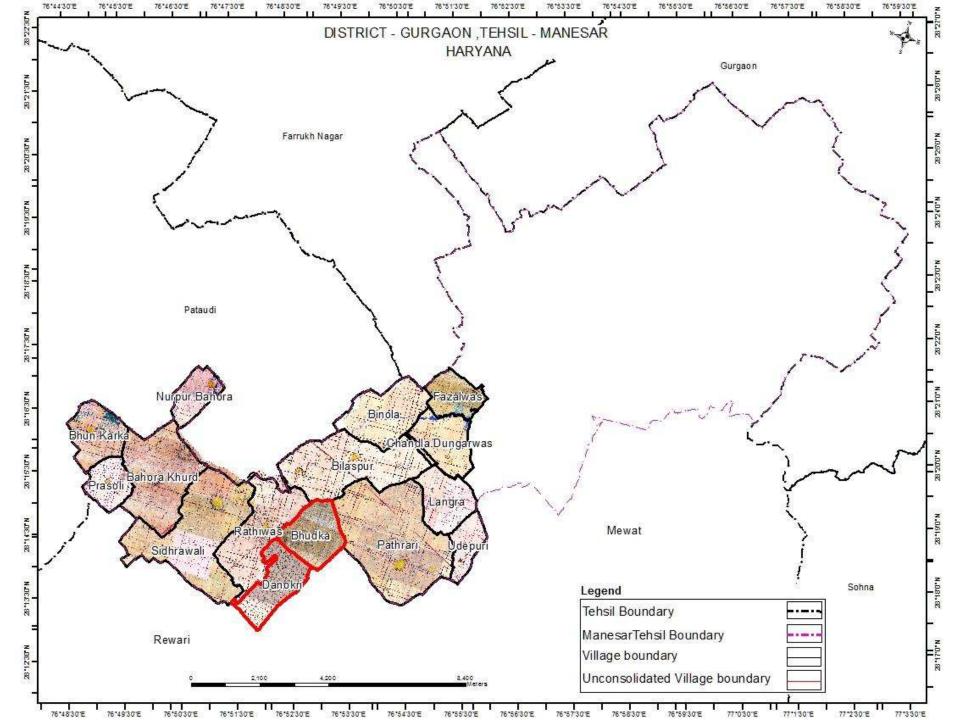


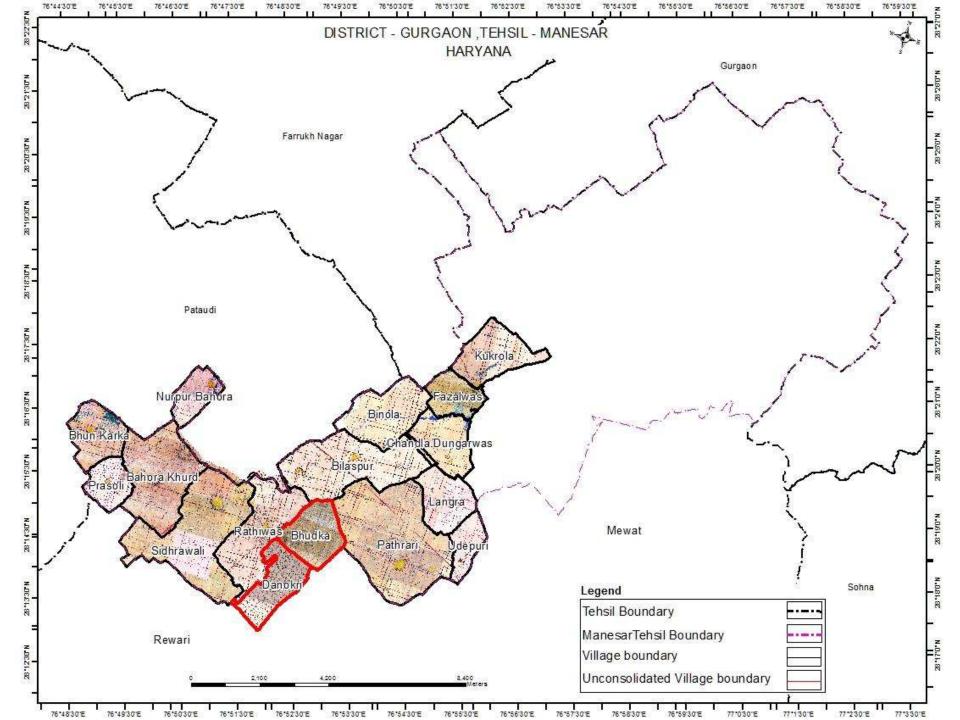


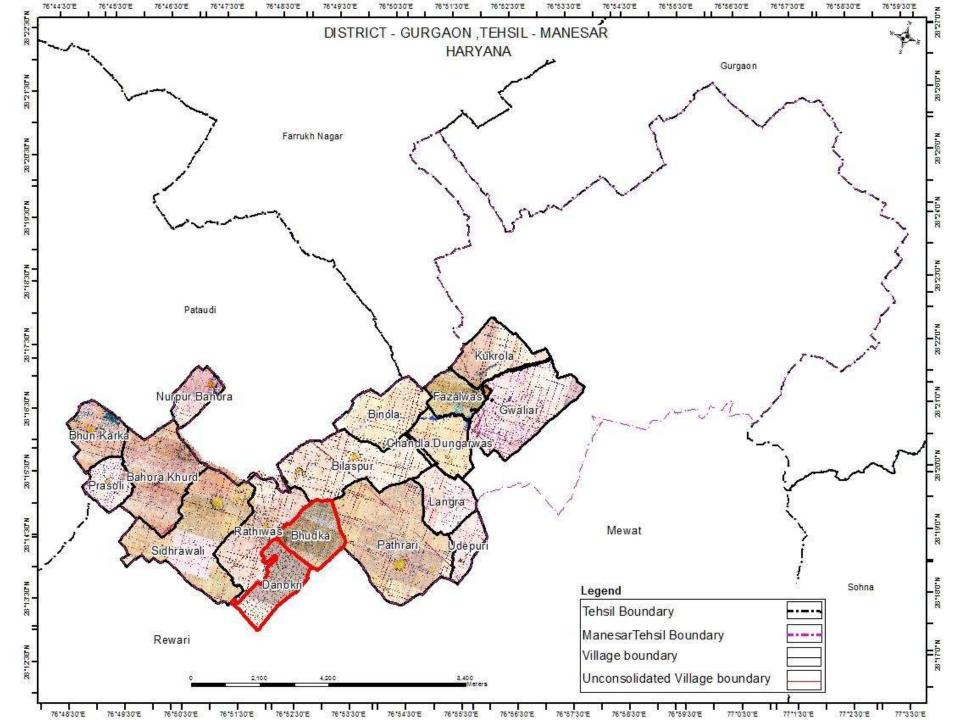


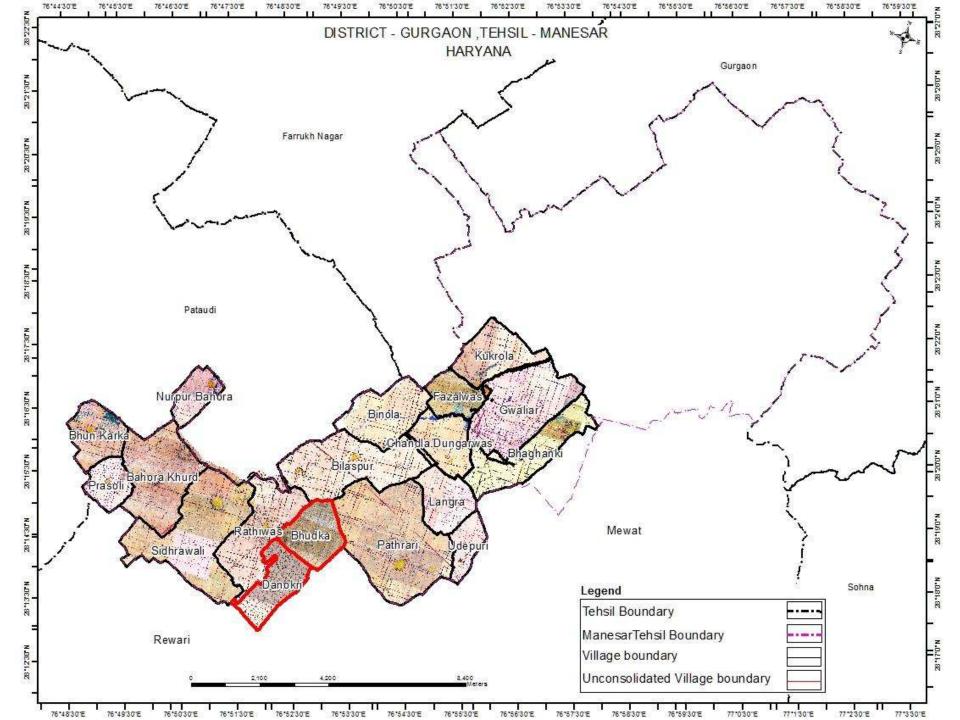


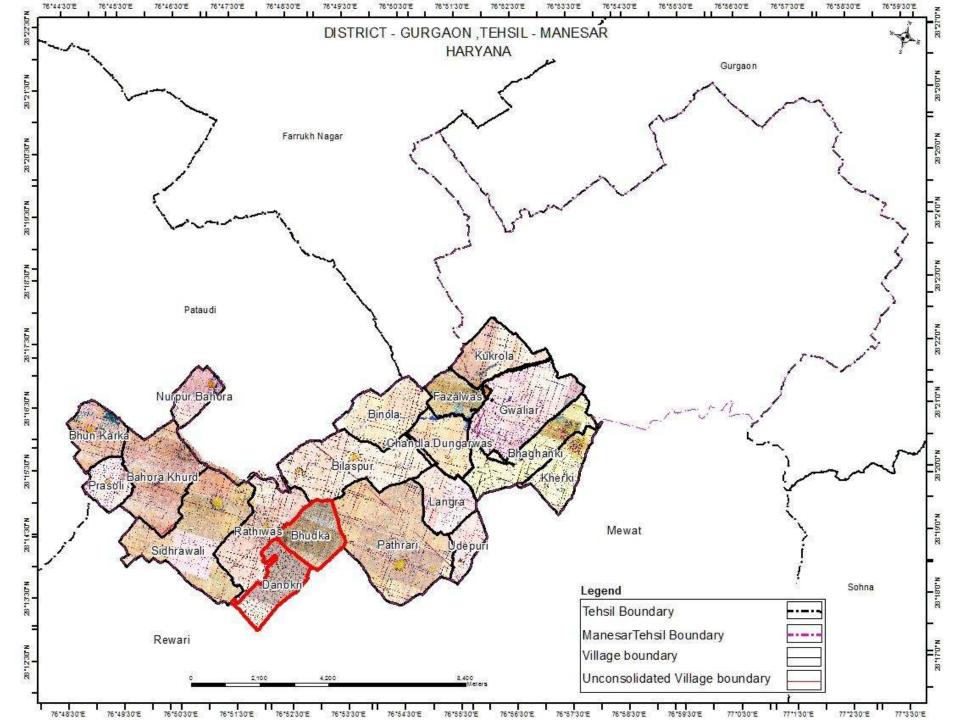


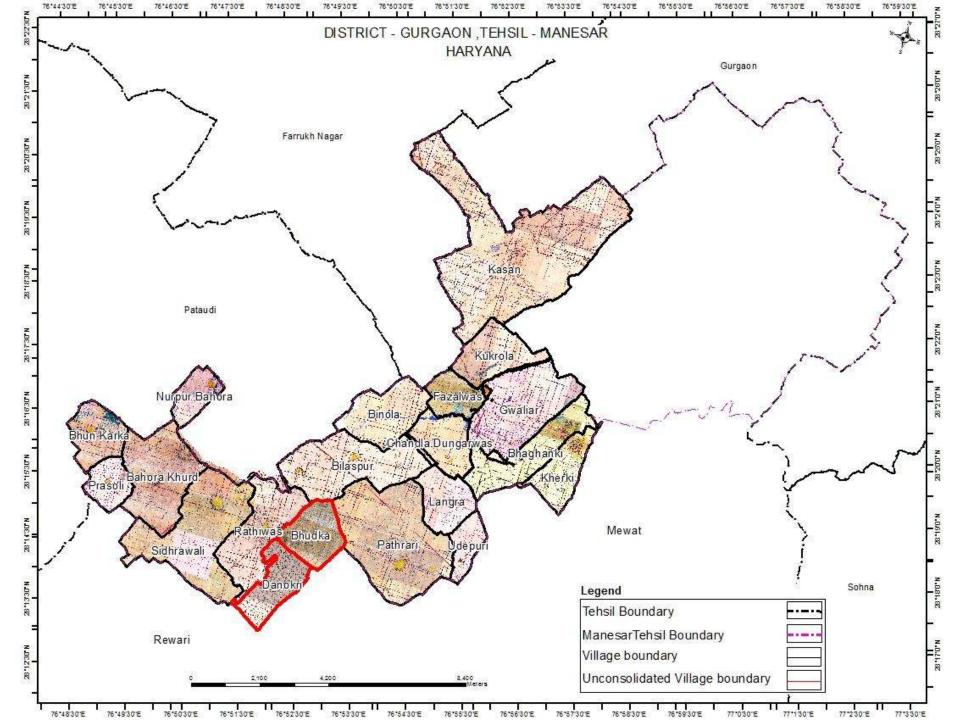


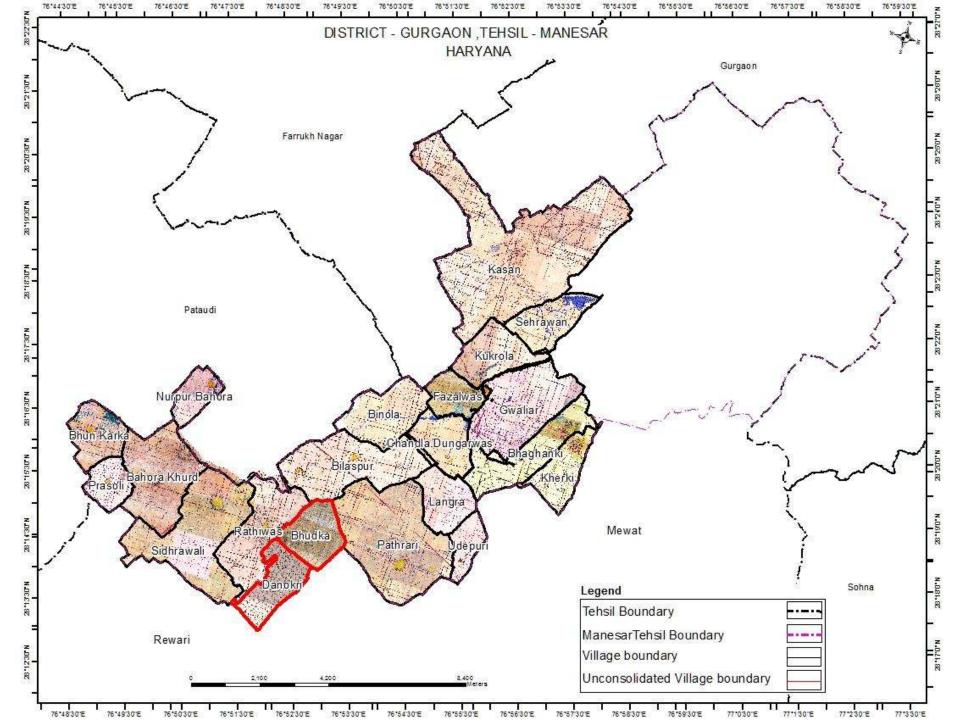


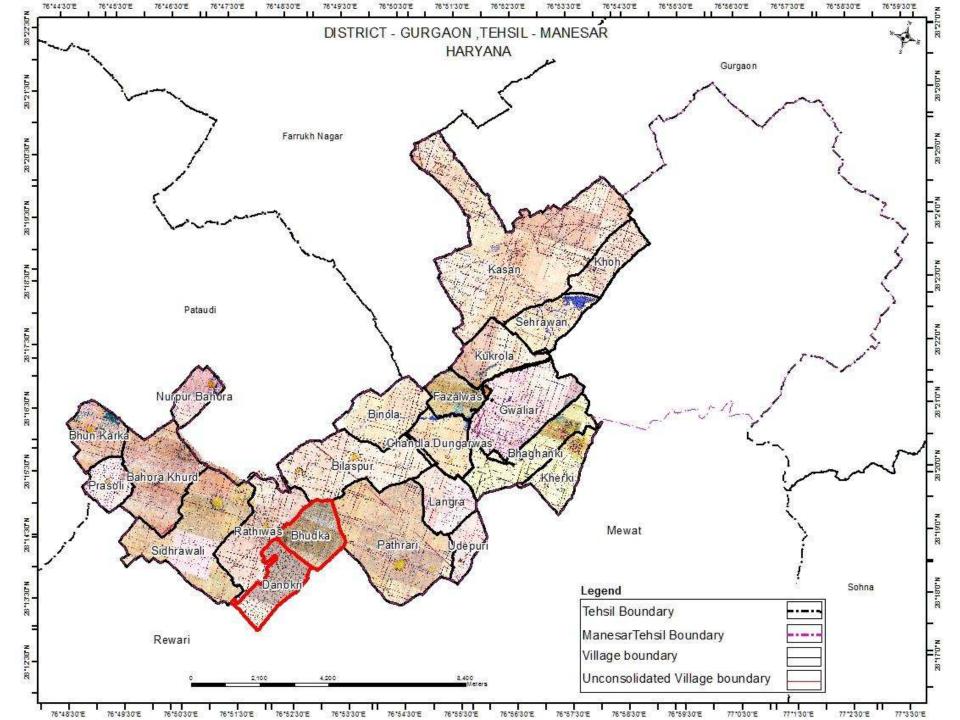


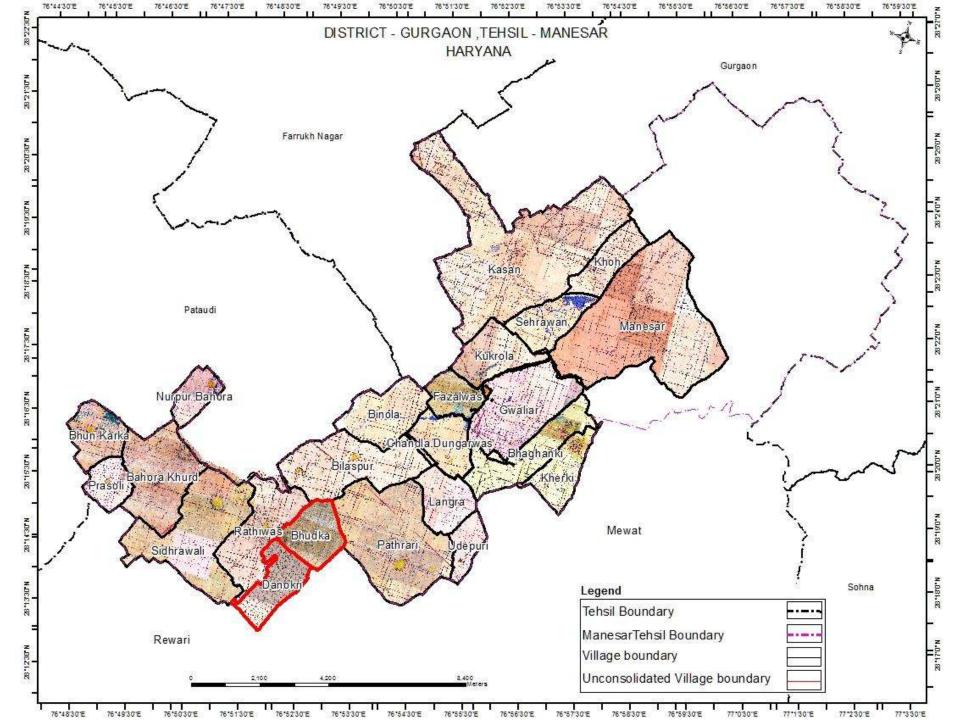


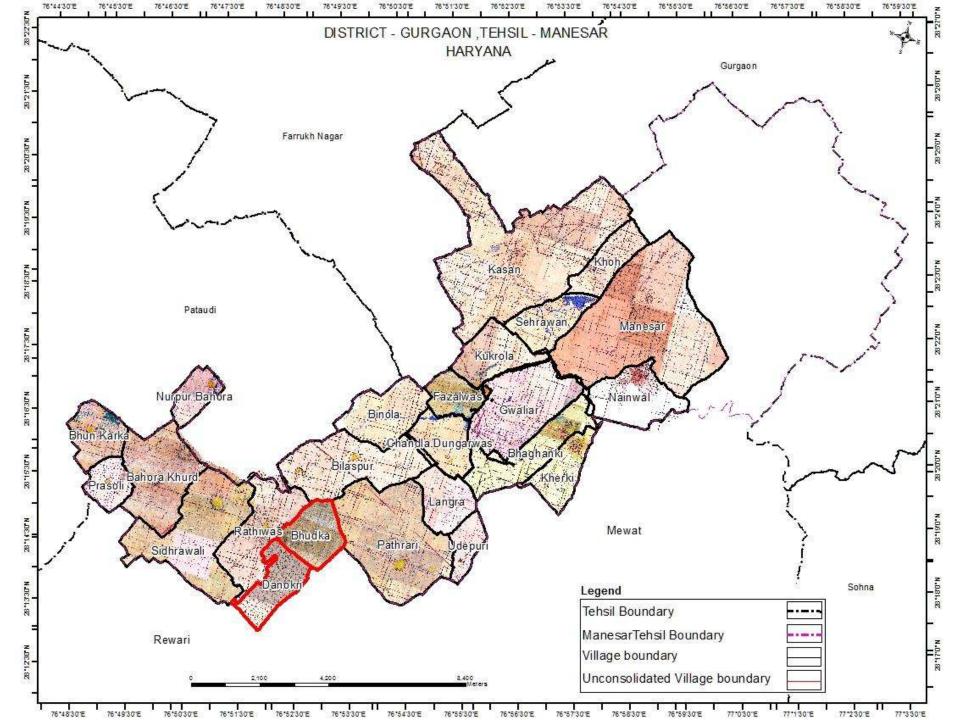


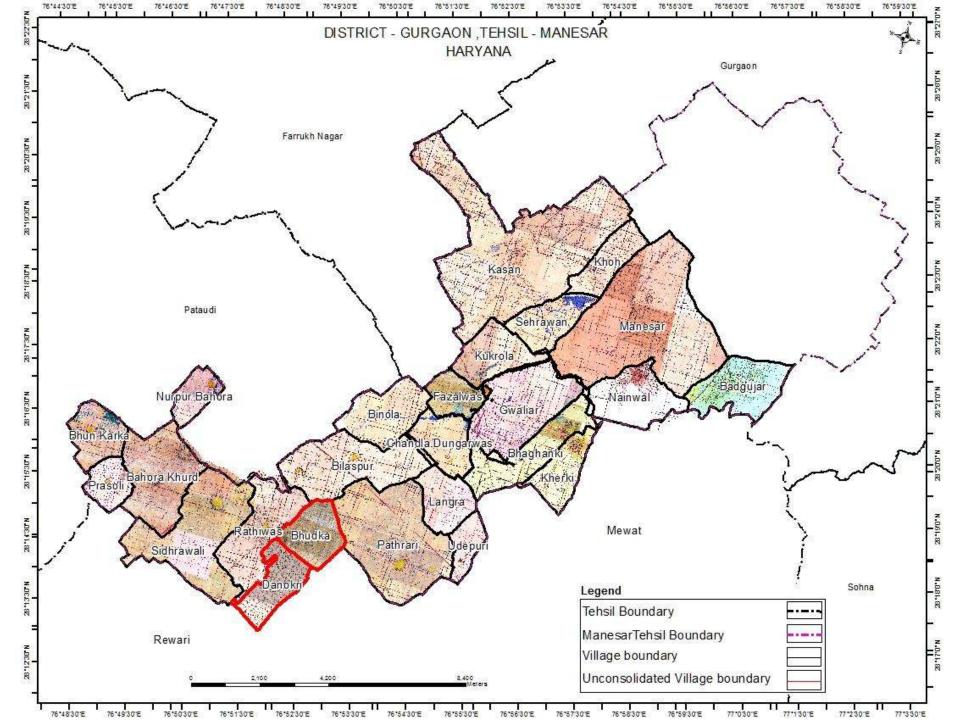


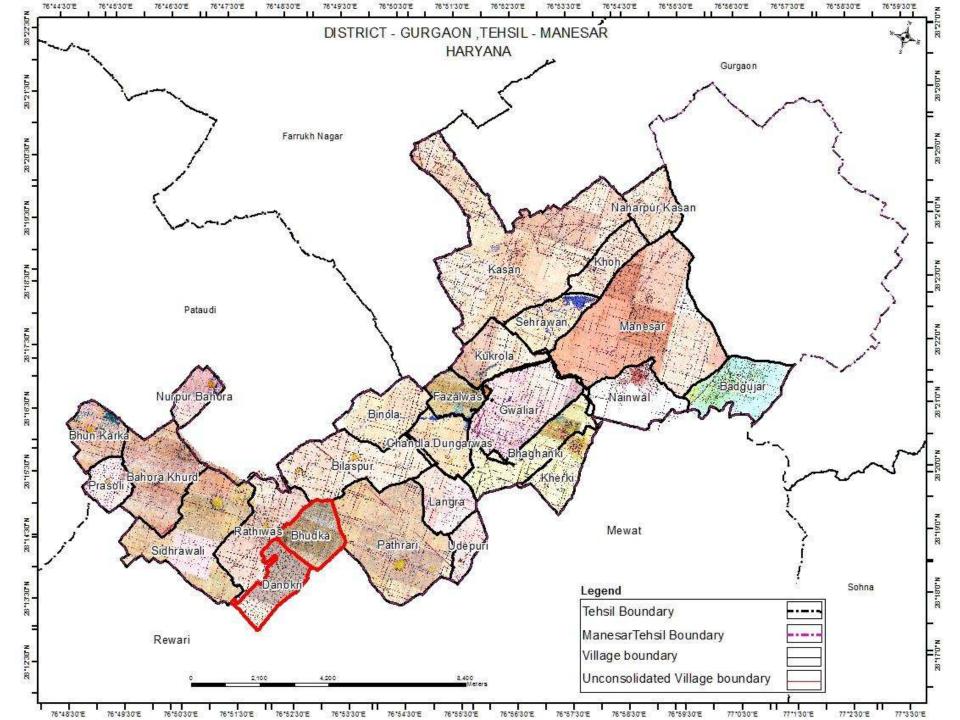


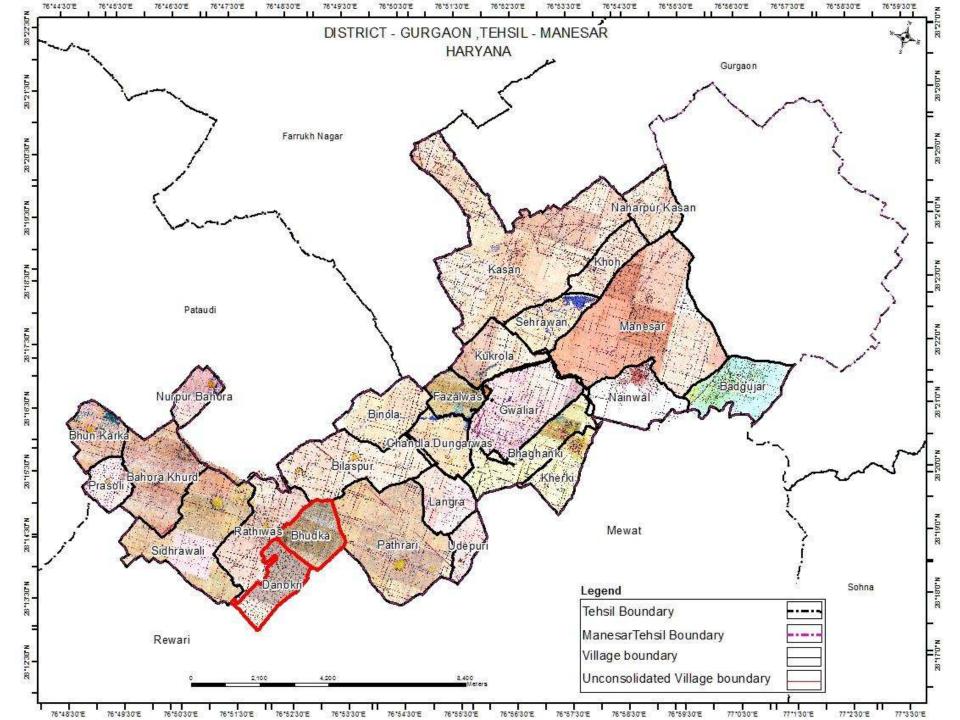


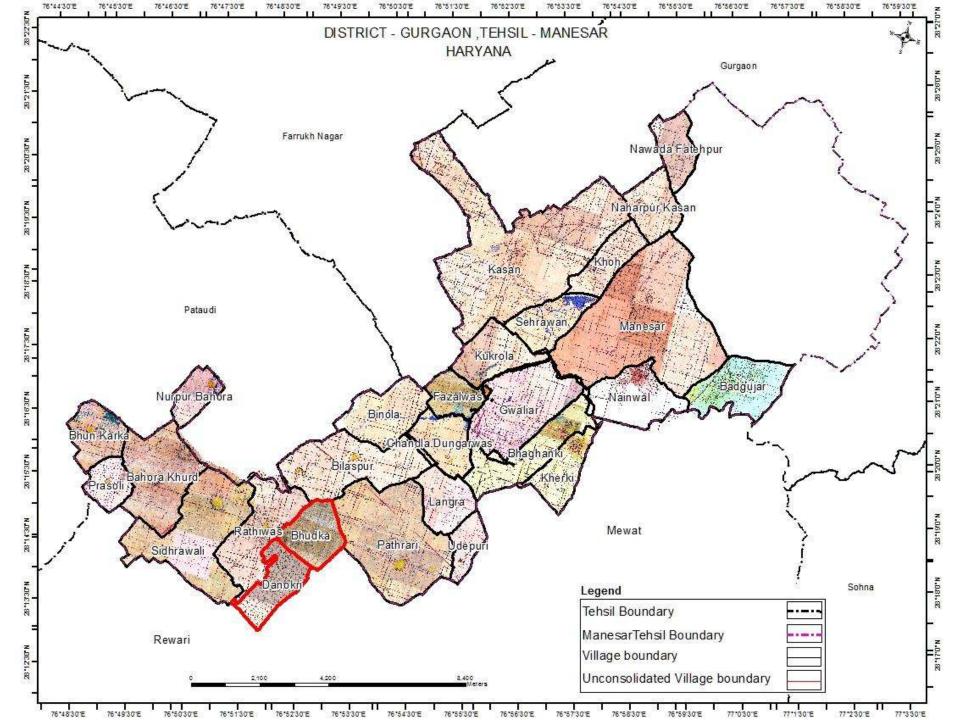


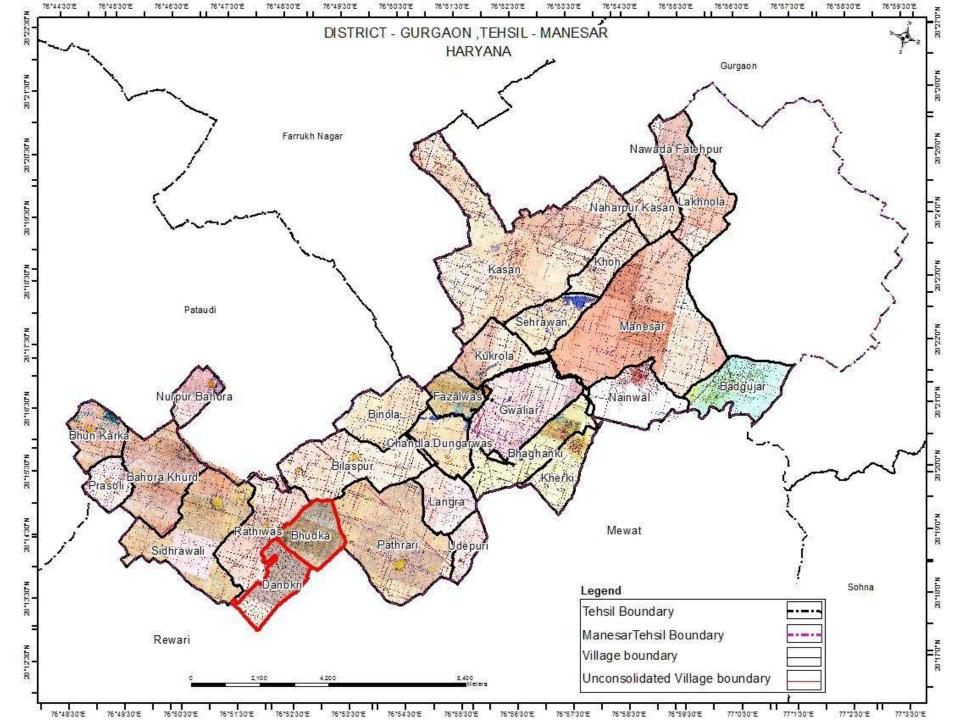


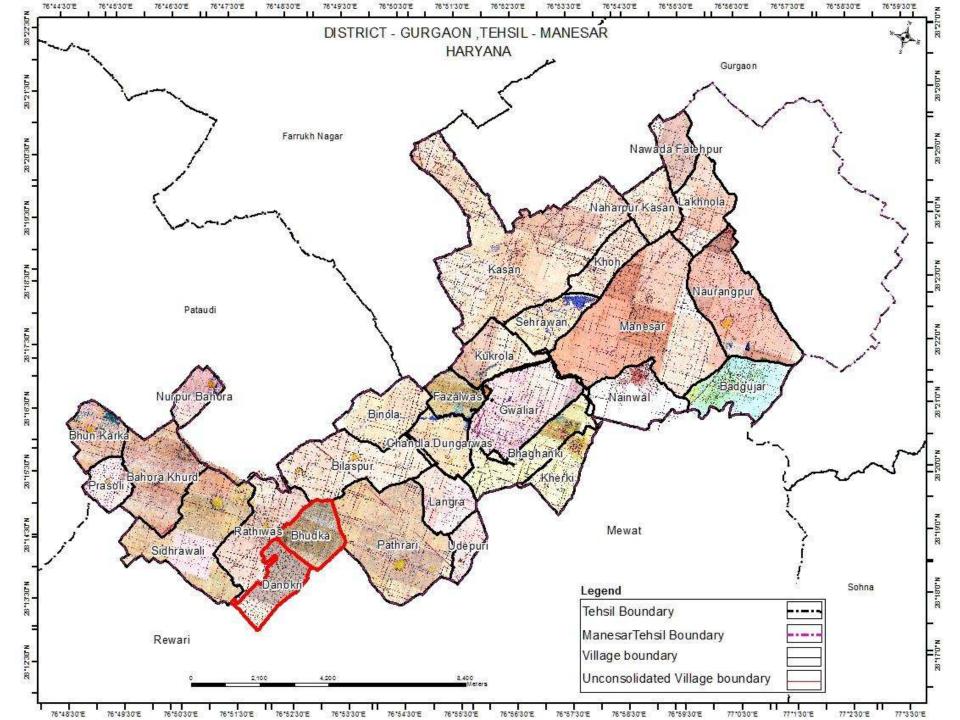


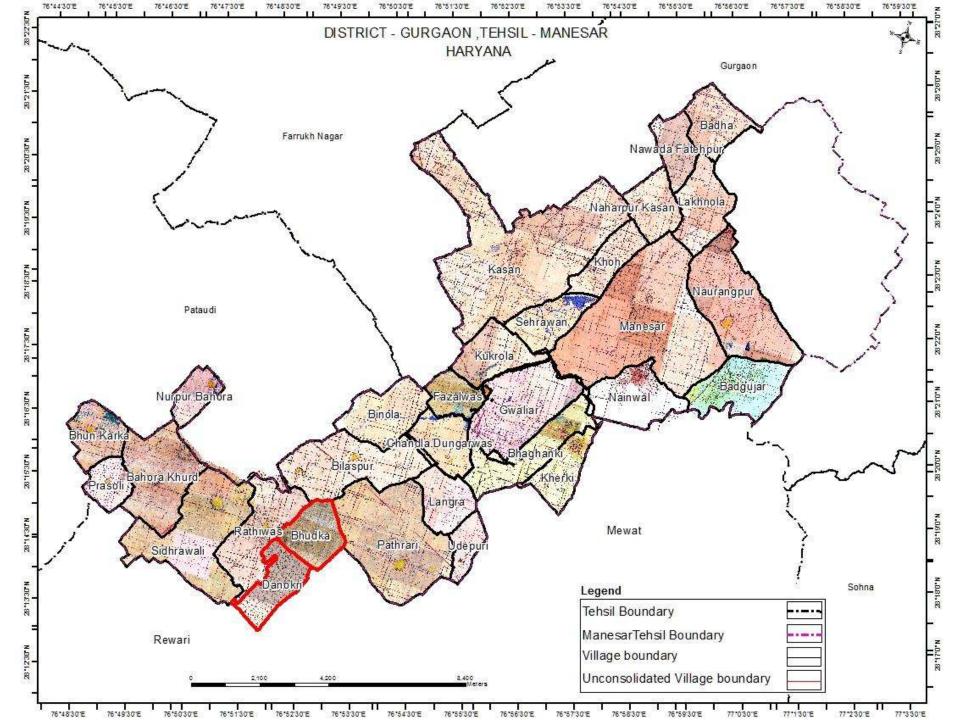


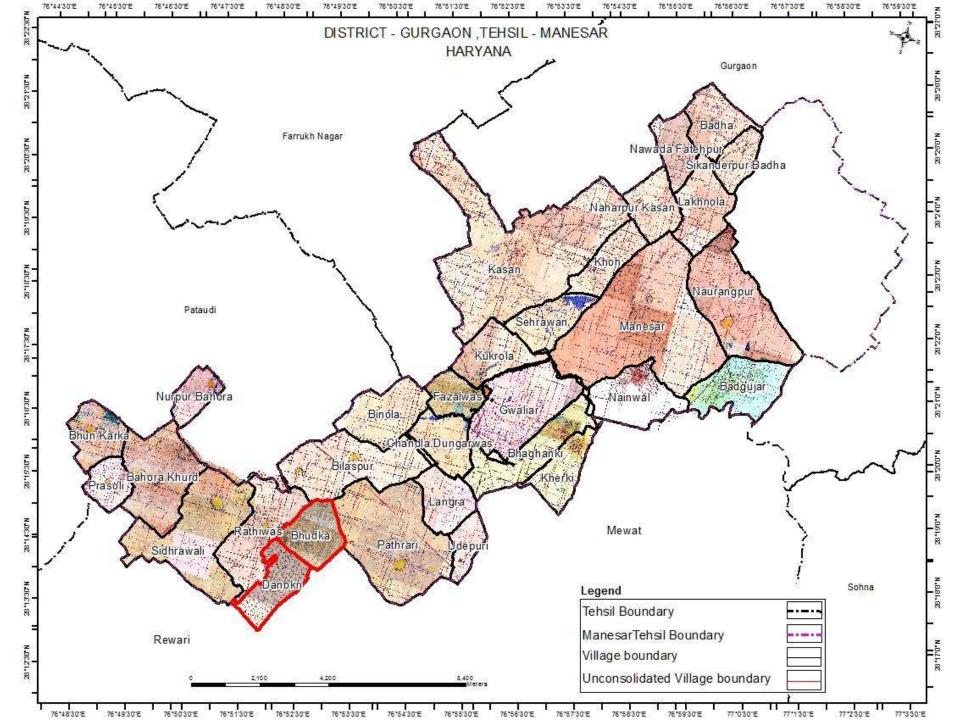


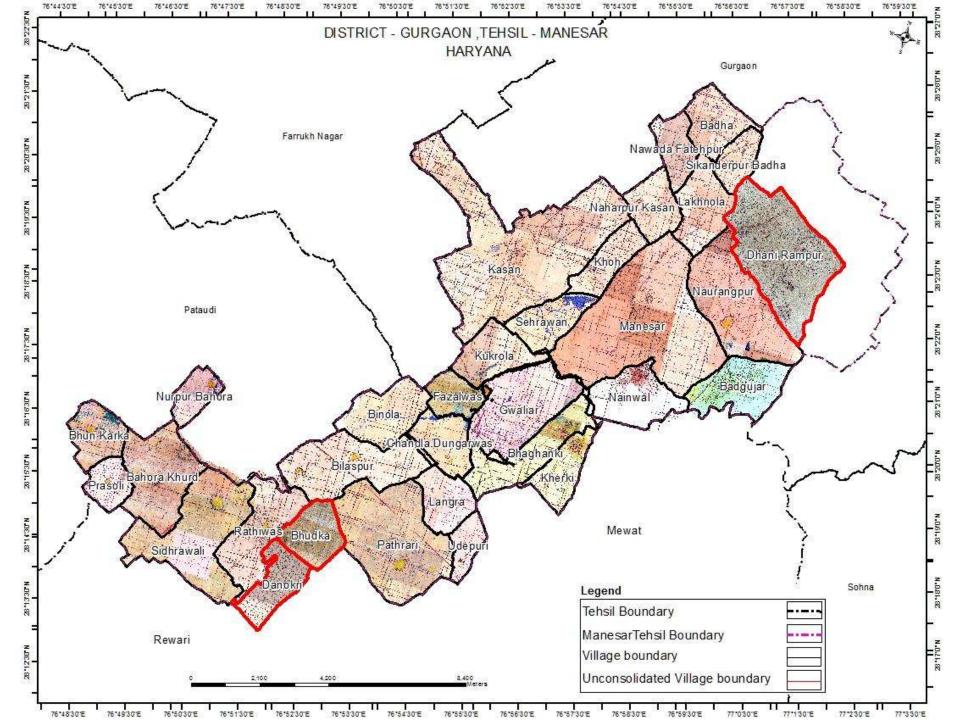


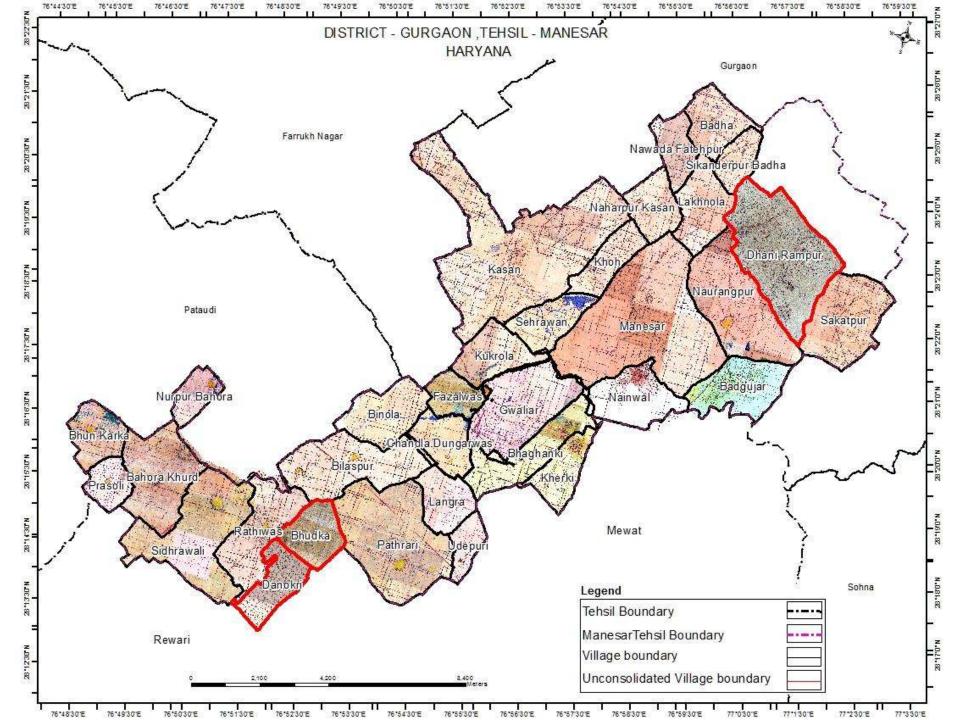


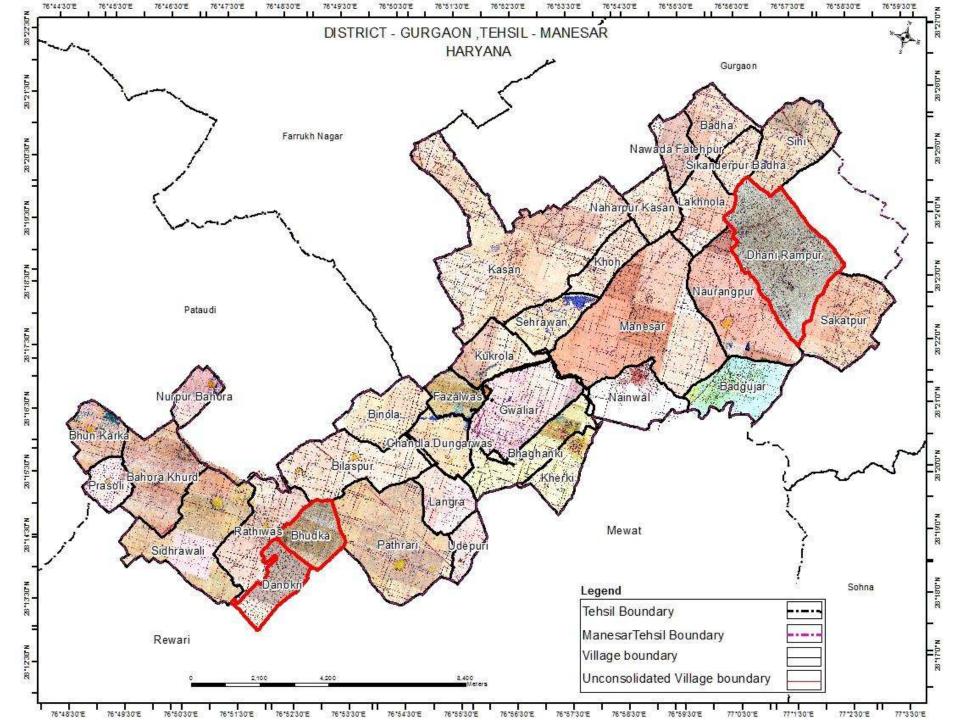


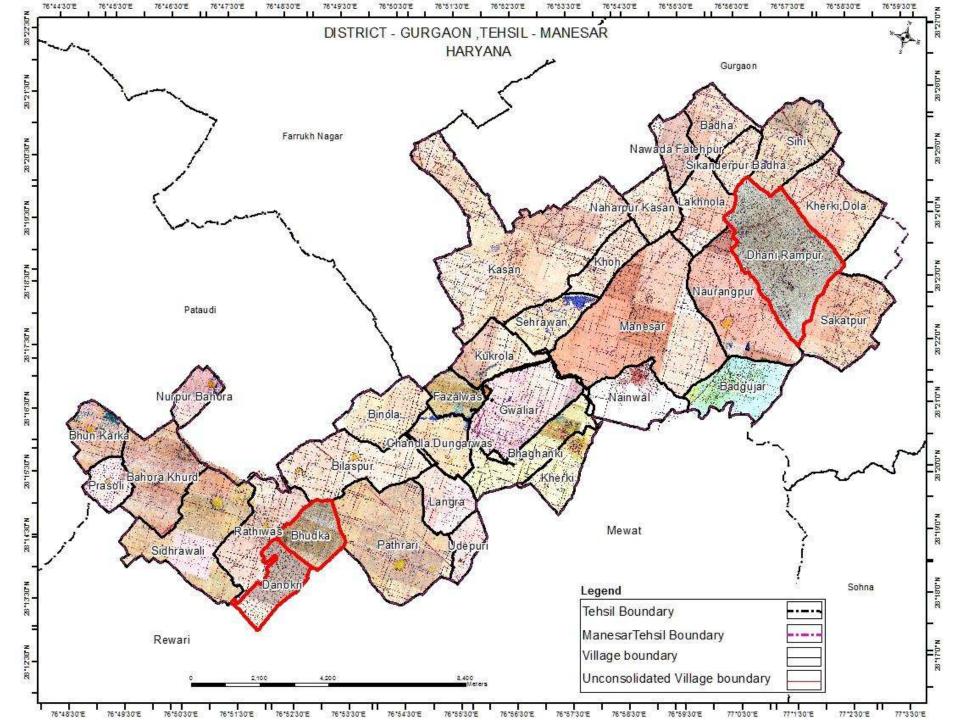


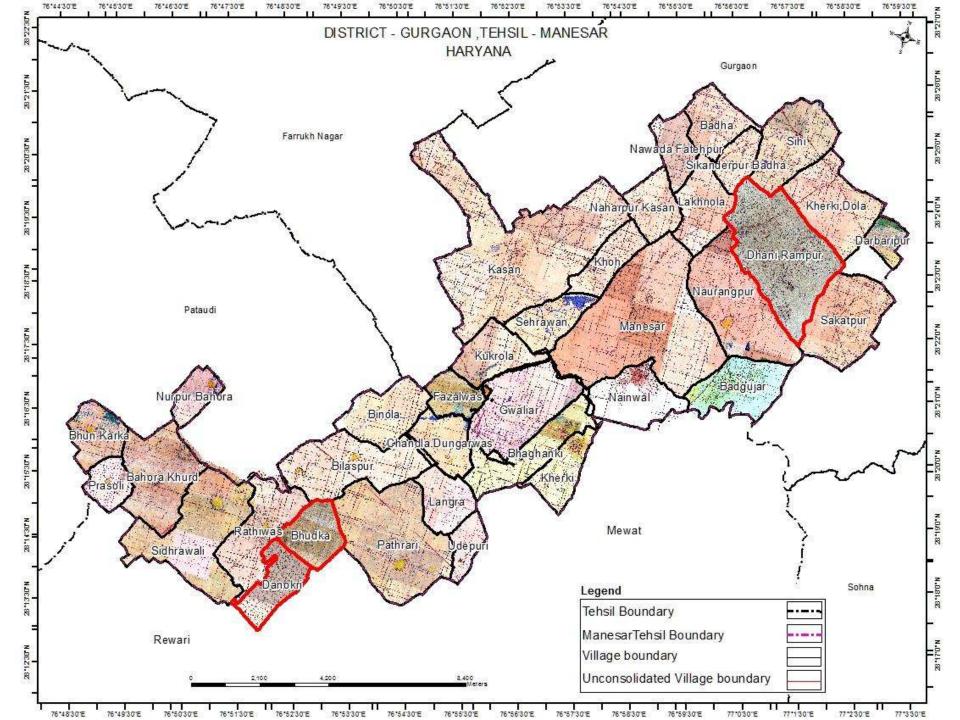


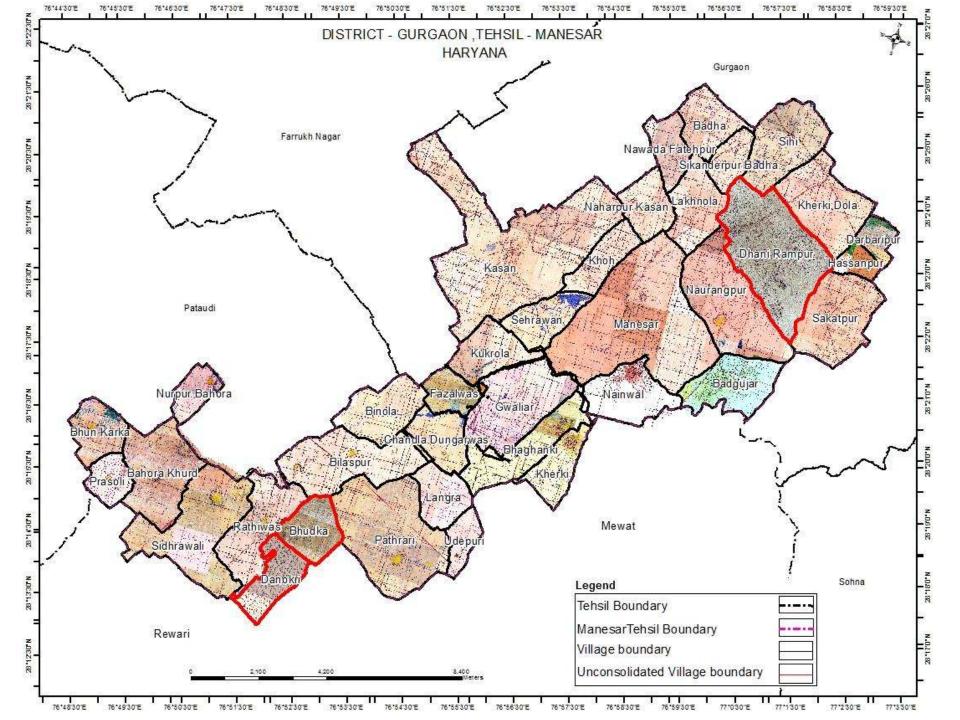


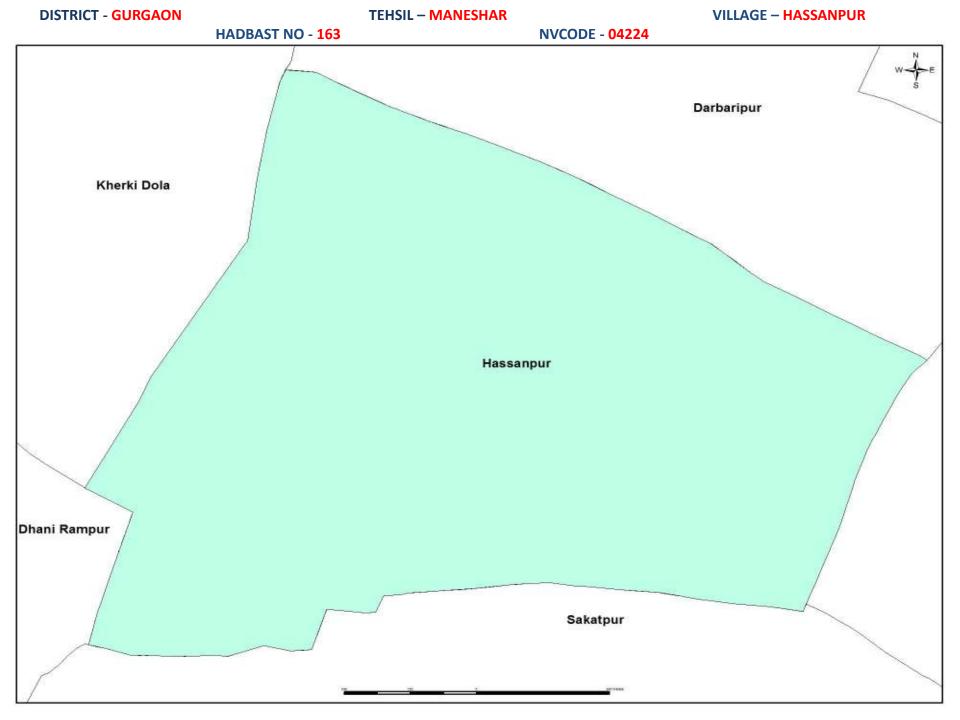


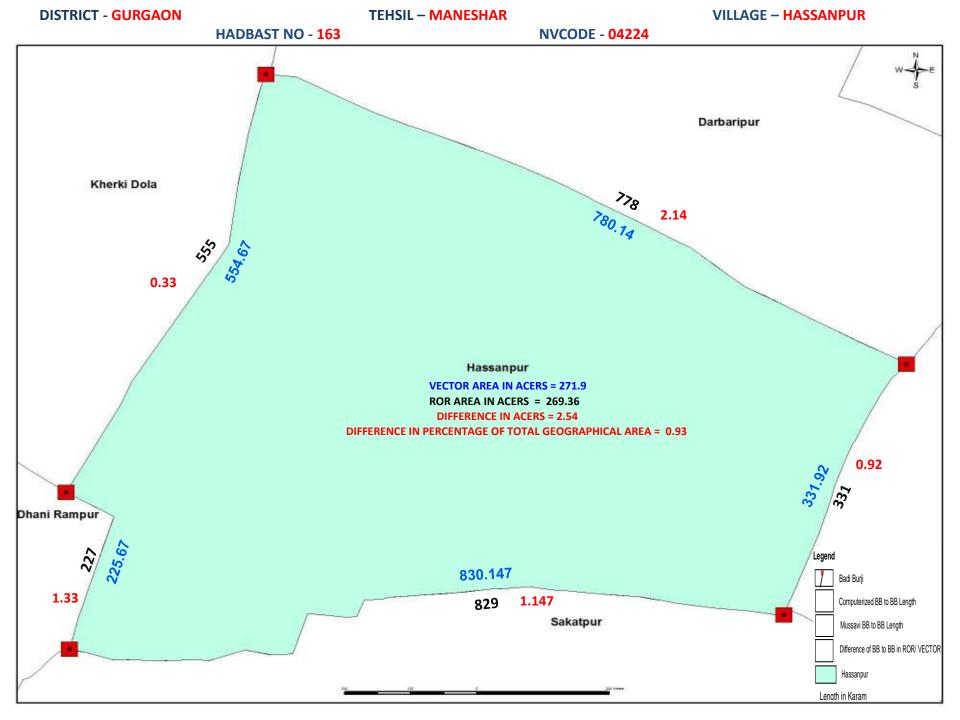




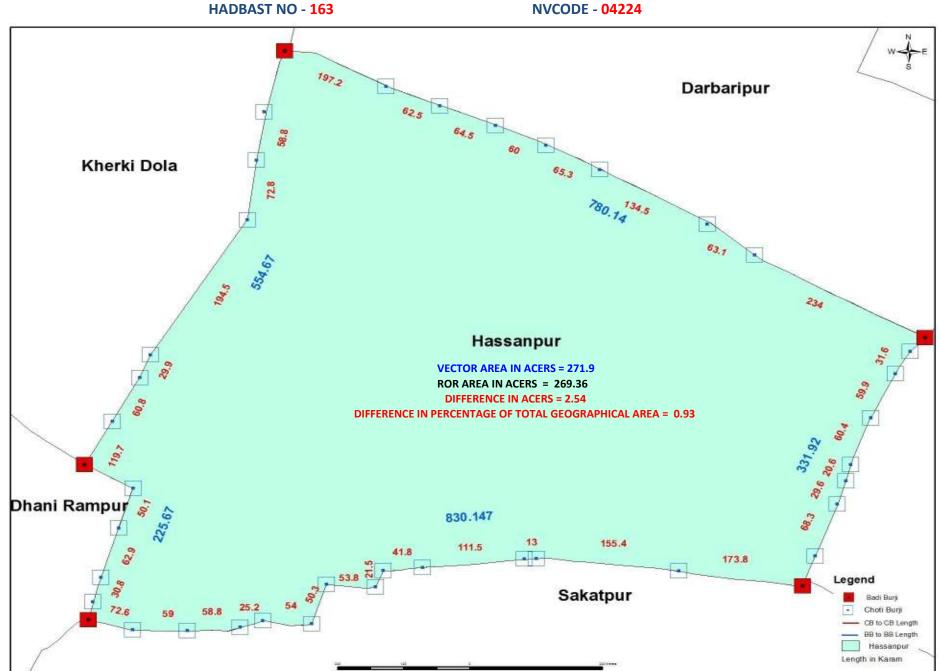


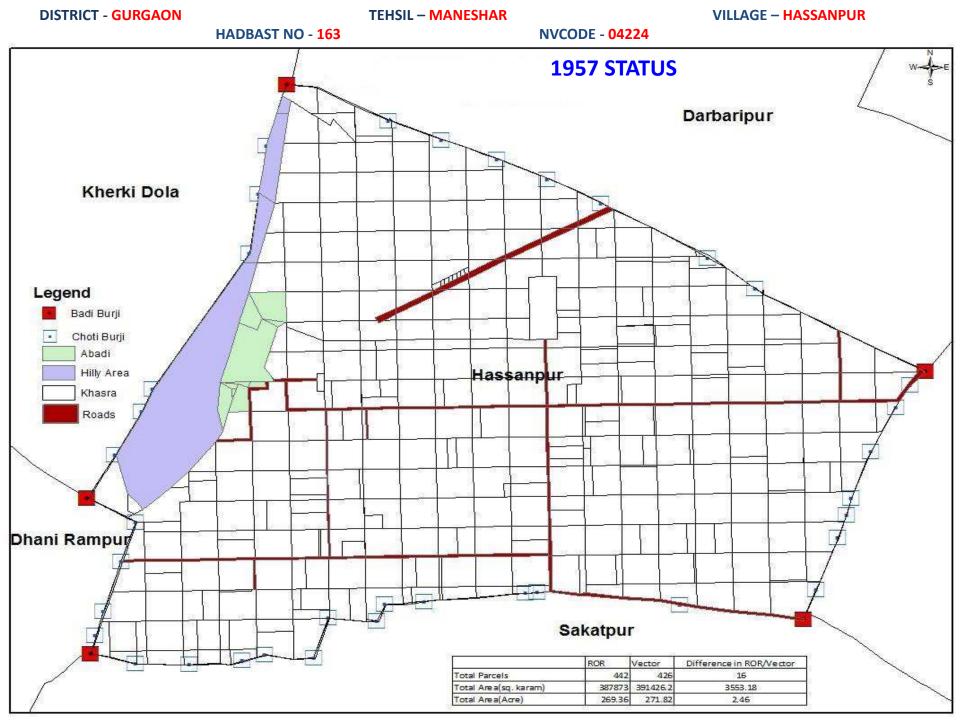


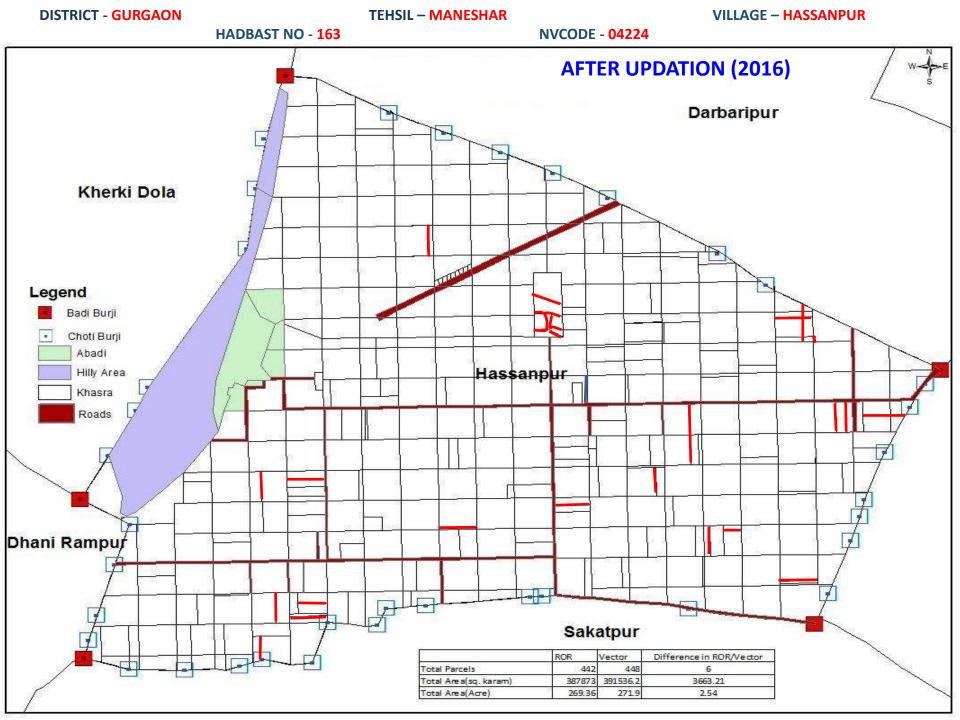




NVCODE - 04224 Darbaripur Kherki Dola Hassanpur **VECTOR AREA IN ACERS = 271.9 ROR AREA IN ACERS = 269.36 DIFFERENCE IN ACERS = 2.54 DIFFERENCE IN PERCENTAGE OF TOTAL GEOGRAPHICAL AREA = 0.93** Dhani Rampur Sakatpur Legend Choti Burji Hassanpur

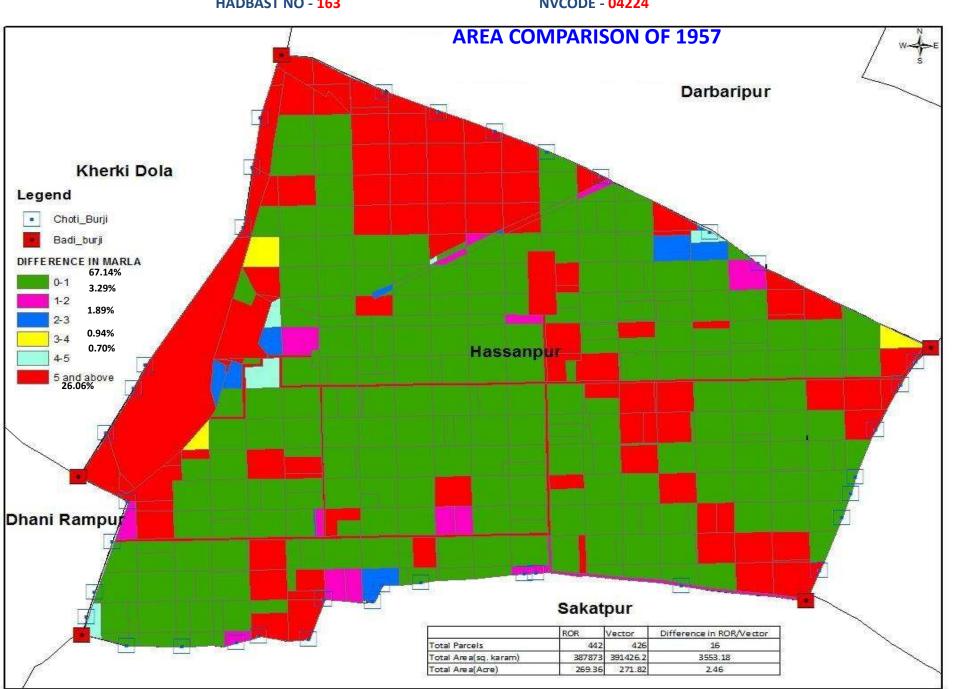




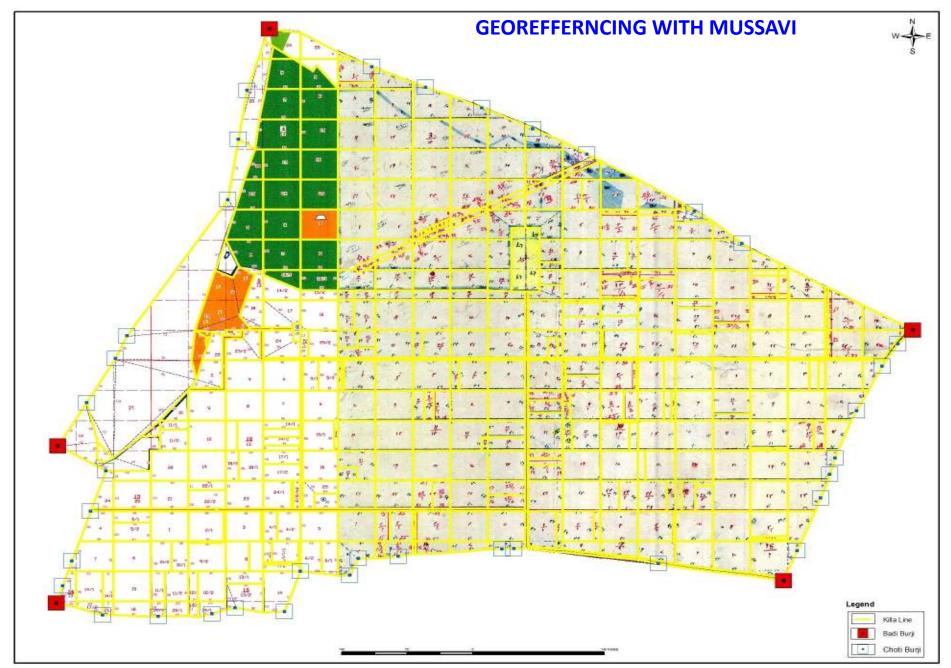


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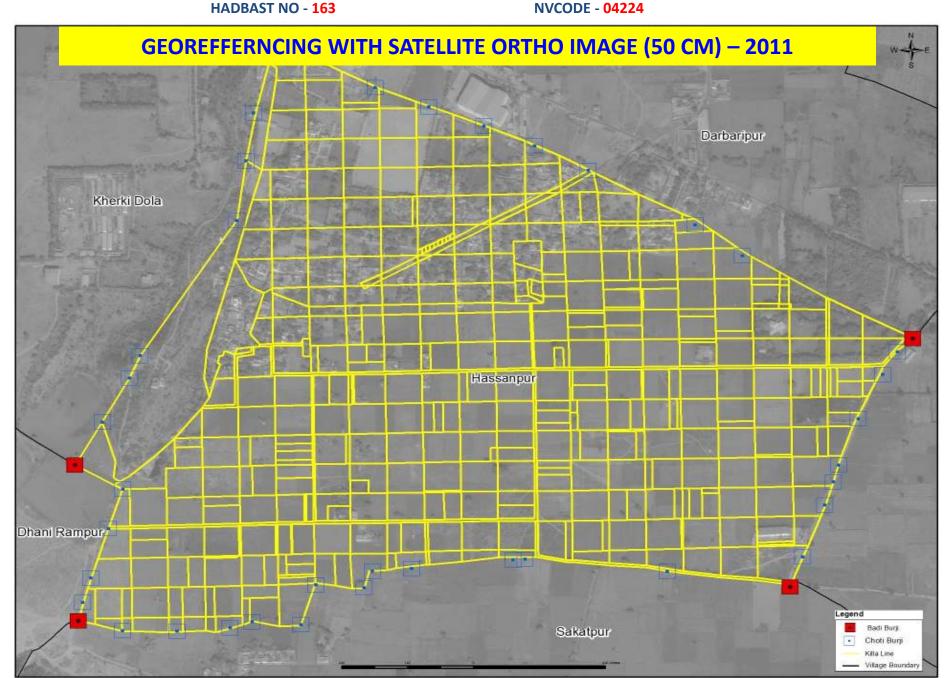
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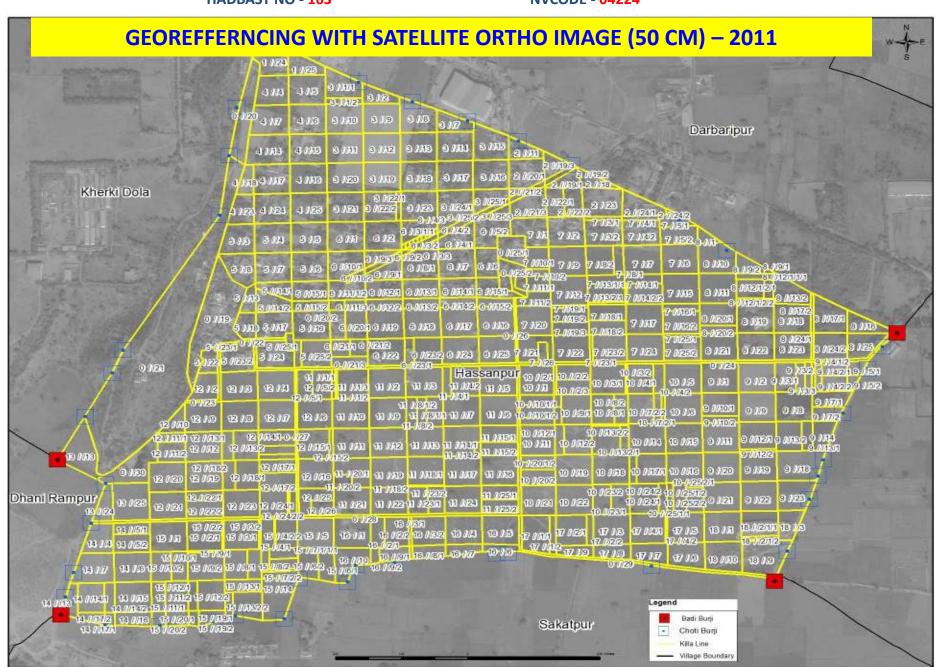


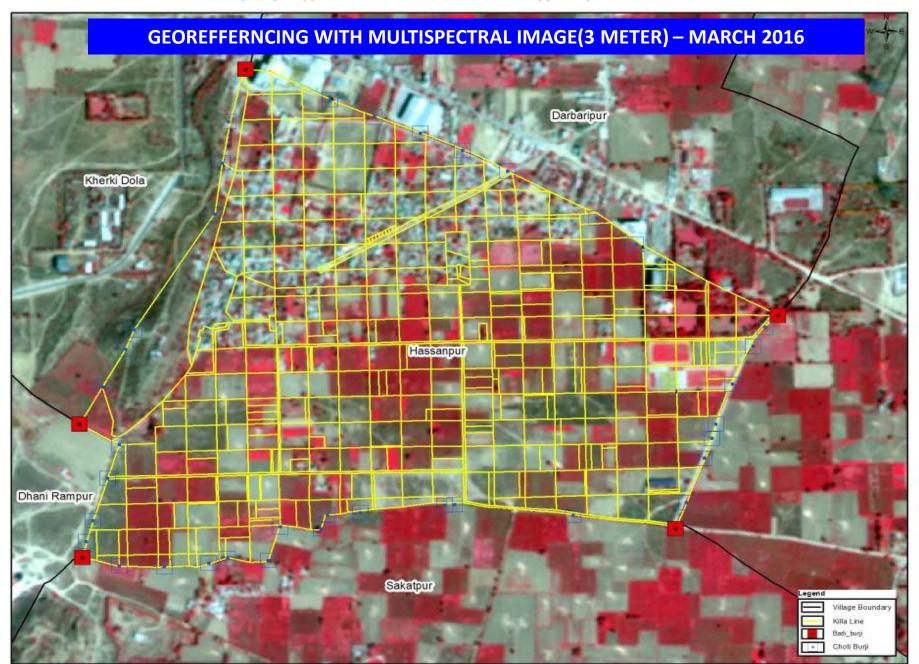
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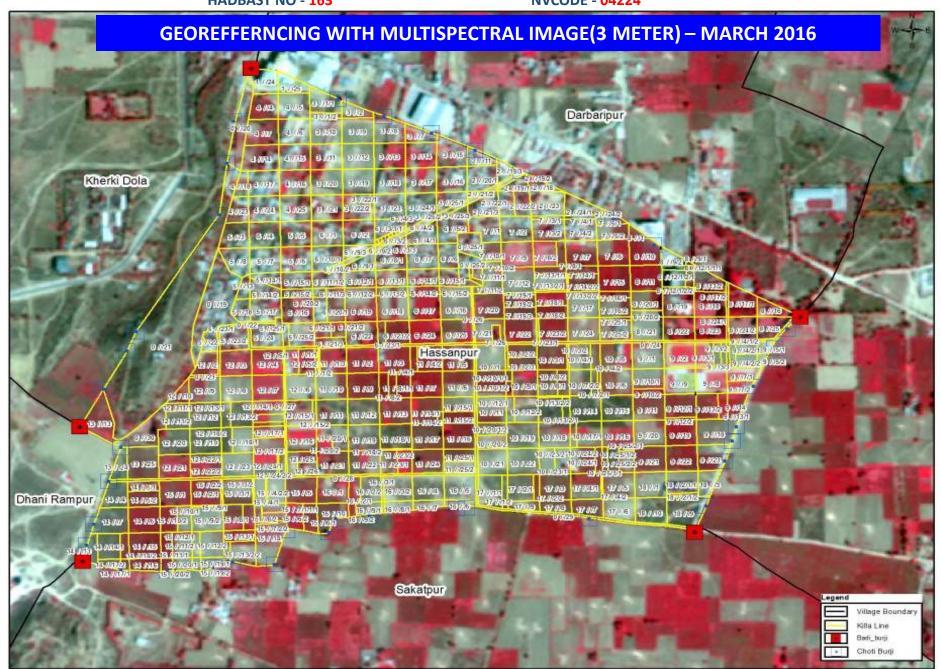


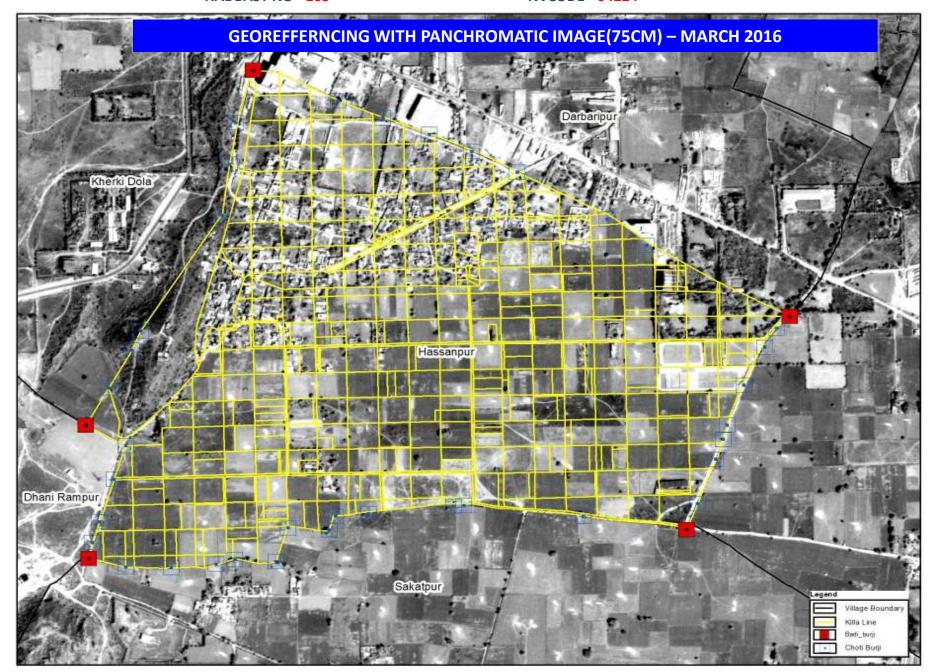
HADBAST NO - 163

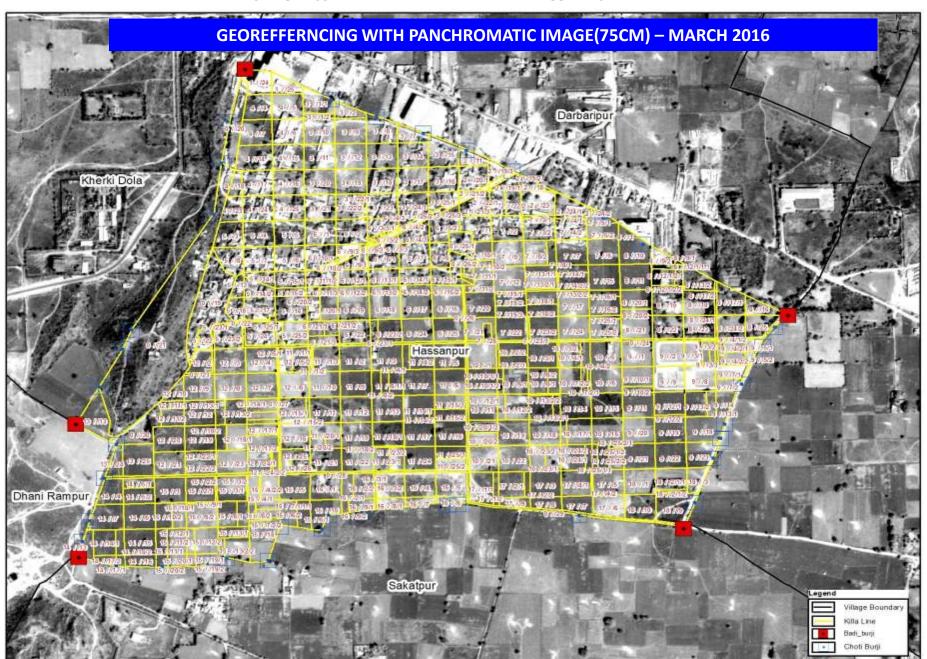




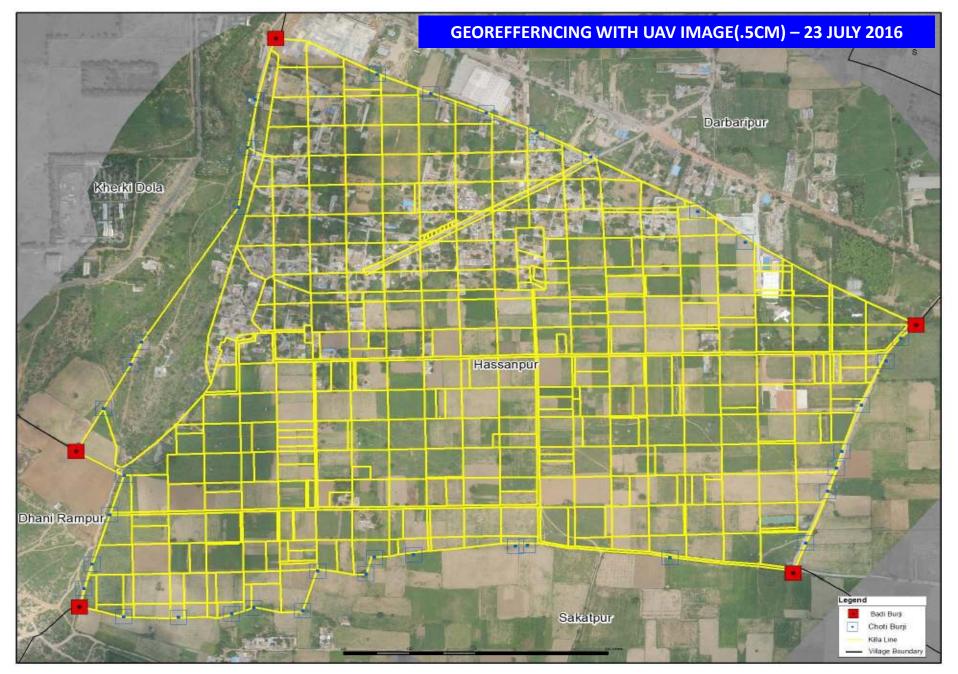




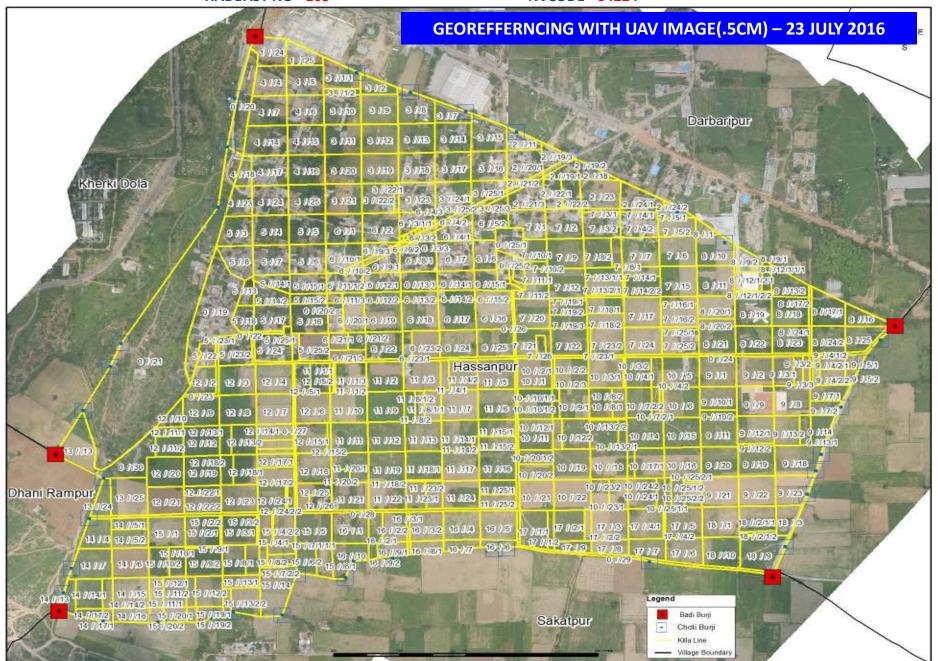




HADBAST NO - 163 NVCODE - 04224



HADBAST NO - 163 NVCODE - 04224



DISTRICT - GURGAON TEHSIL - MANESHAR VILLAGE - SEHRAWAN

HADBAST NO - **152** NVCODE - **04129**



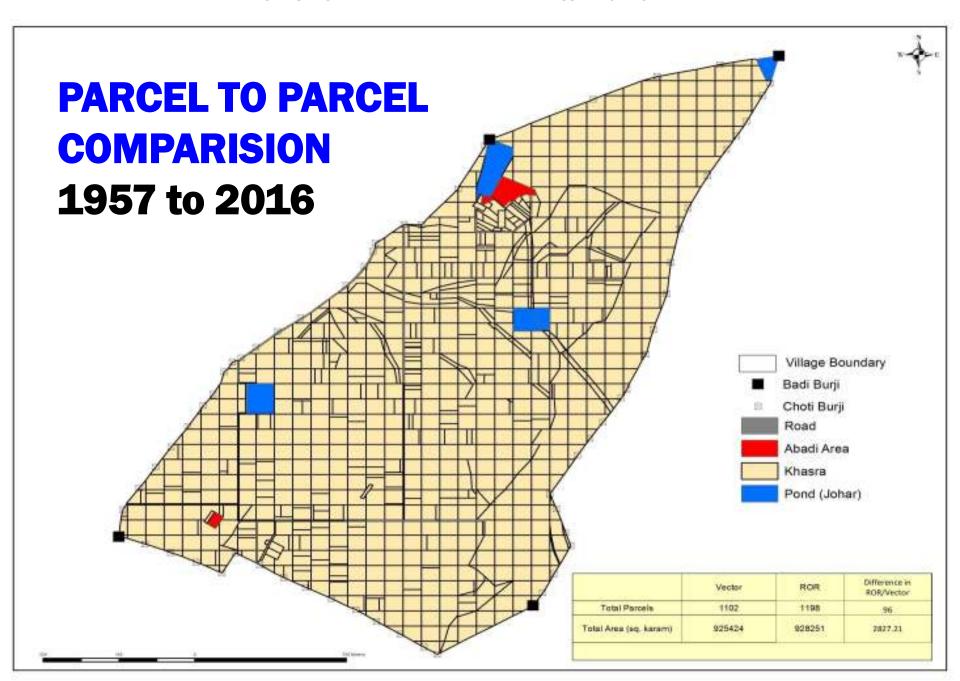
NVCODE - 04129

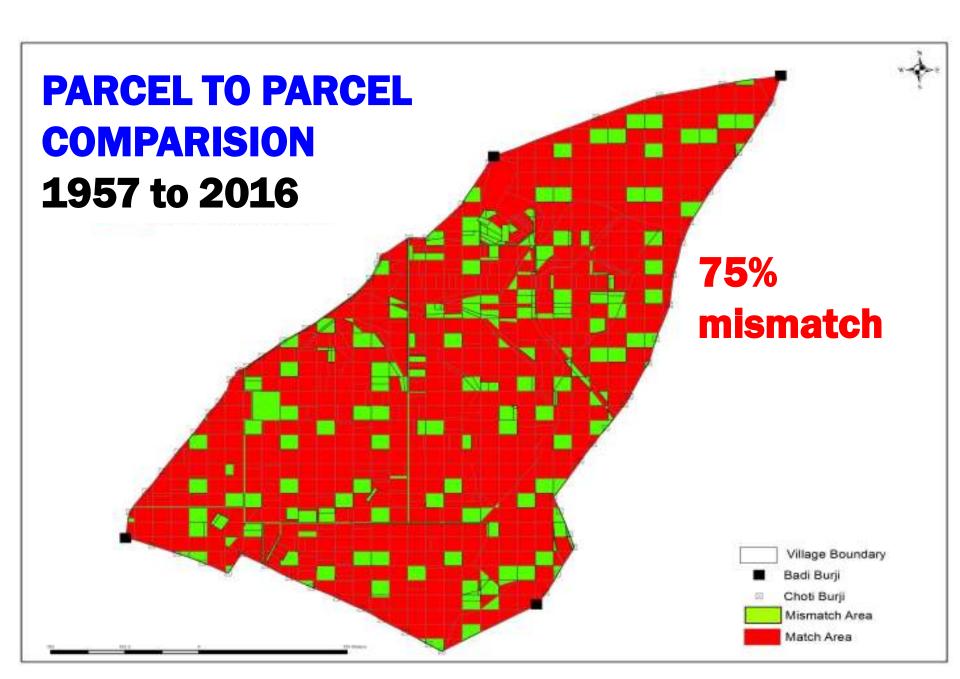


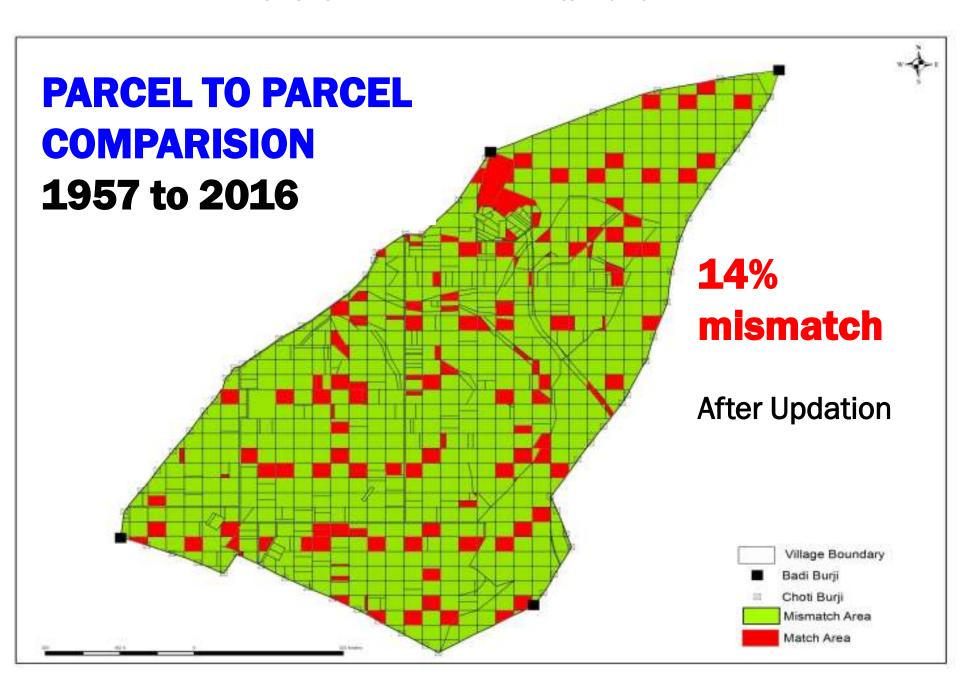
VECTOR AREA IN ACRE = 643.31 ROR AREA IN ACRE = 644.55 DIFFERENCE IN ACRE = 1.24(0.19 %)

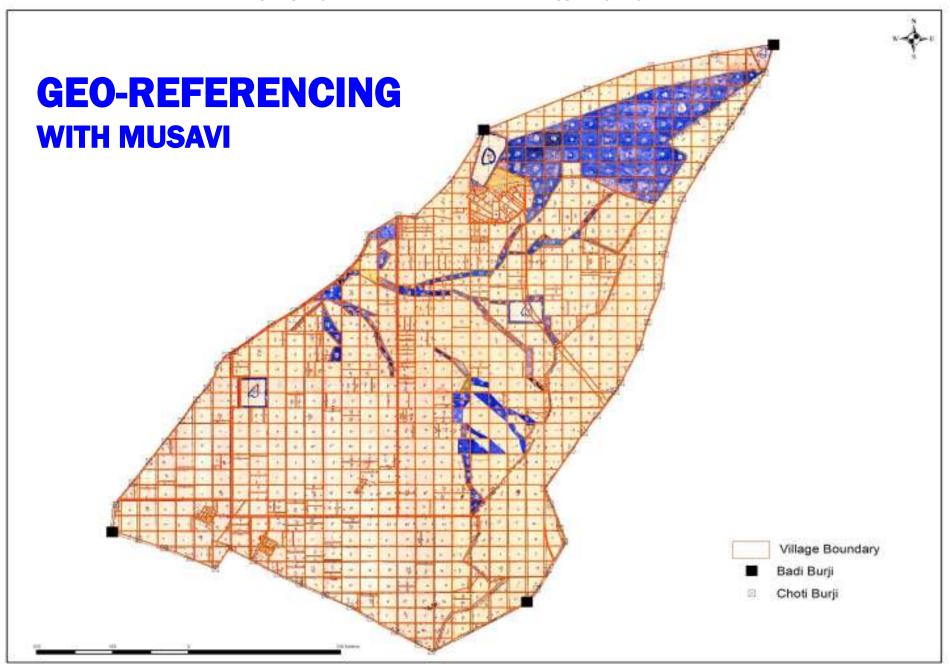
Legend

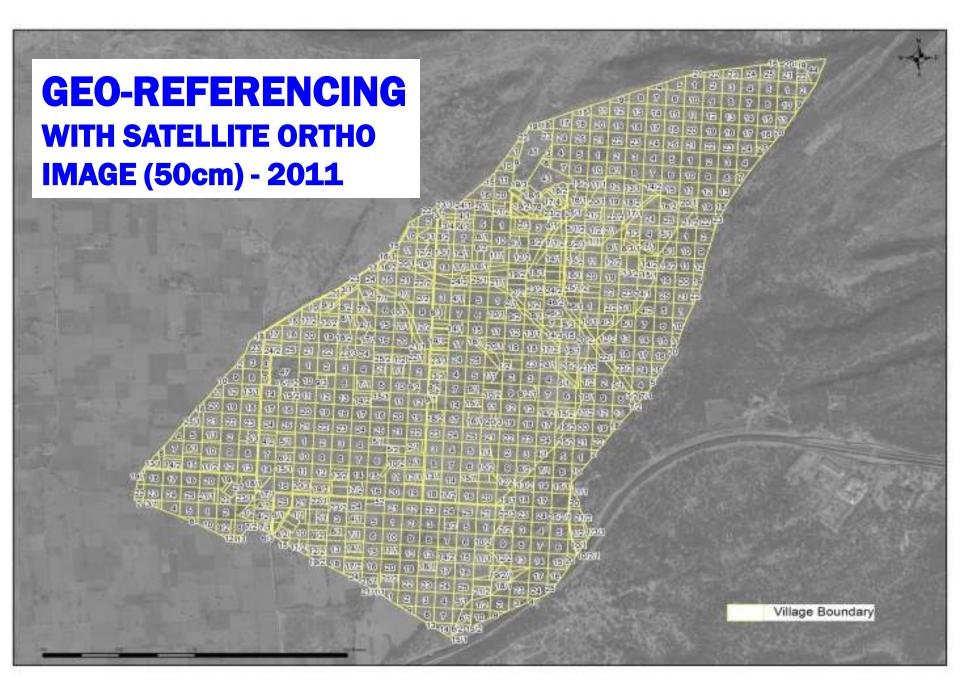
www.harsac.org; email id: contact@harsac.org

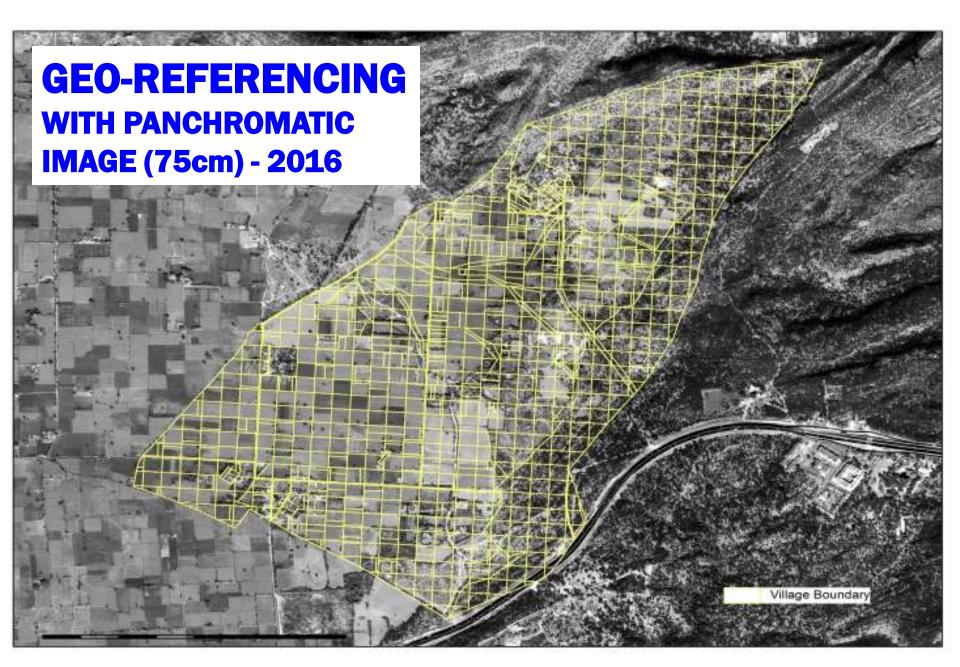






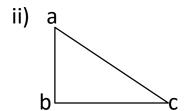




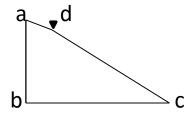


REASON OF DIFFERENCE IN VALUES

- 1. ROR is not updated.
- 2. Area Miss match
- i) Decimal values are entered as whole numbers. i.e 2.6 is considered as 3, and 2.4 is considered as 2.



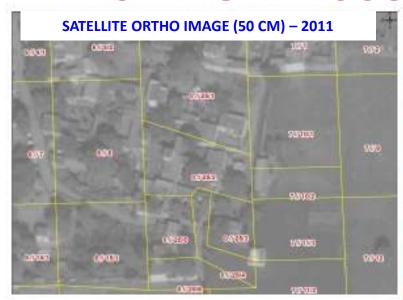
in the above figure any plot which seems to have three sides with two known side values the third is computed of its own and the area is also computed accordingly but the situation is something different.

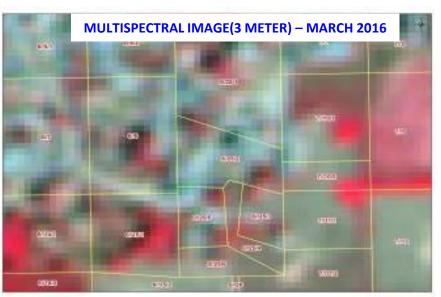


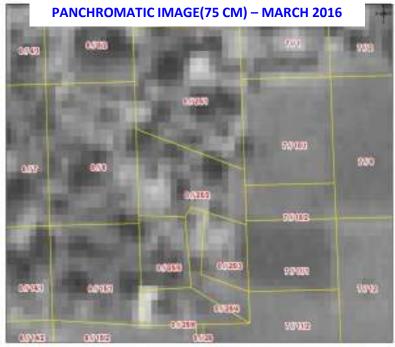
the plot is a quadrilateral thus the sides cannot be calculated by considering two known sides.

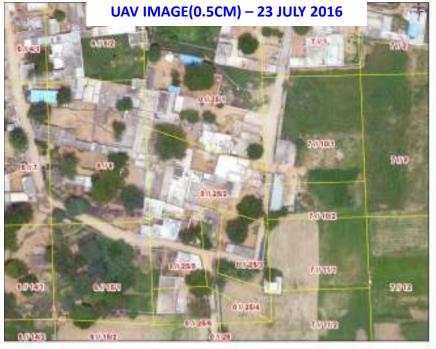
- 3. Wrong manual entry.
- 4. Sajra, Mussavi, Field Book, among the three, one of them having different value at some places.

INCREASED ACCURACY OF RECORDS

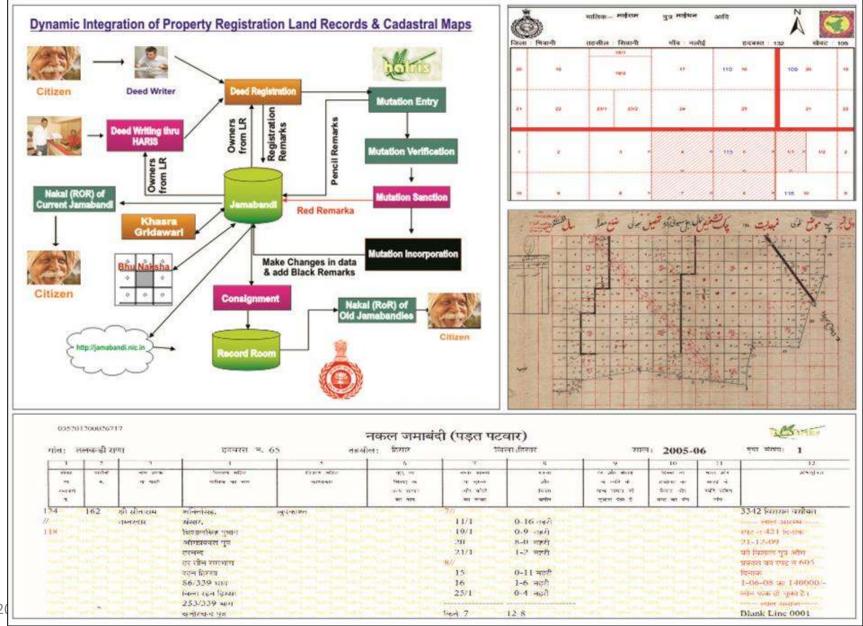




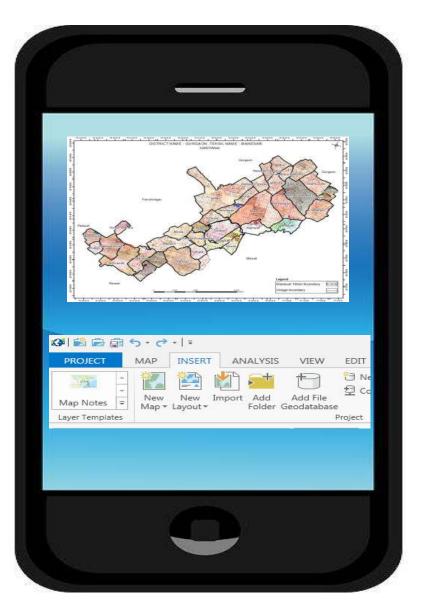




ONLINE & ACCURATE LAND RECORDS



ONLINE & ACCURATE LAND RECORDS





g-Smart Patwari

Land Record Modernization: Manesar Benefits to Citizens and Economy

- Real-time land records to the citizens
- Land Records to be transparent & tamper-proof
- Reduction in time for obtaining copies of RoRs and maps.
- Reduction in Land disputes & litigation
- Obtaining certificates and other land records through kiosk/Common Service Centre(CSC)
- Market value of immovable property and legacy encumbrance information on internet

3. TEHSIL LEVEL: SOHNA

Land Tax Information Management System

Land Information Management

Urban Areas - Sohna Town



High- Resolution Satellite Image 50cm

Project UDAAN 5cm Resolution





Land Information Management

Rural Areas - Agricultural Fields



High- Resolution Satellite Image 50cm

Project UDAAN 5cm Resolution





Land Information Management

Rural Areas - Agricultural Fields



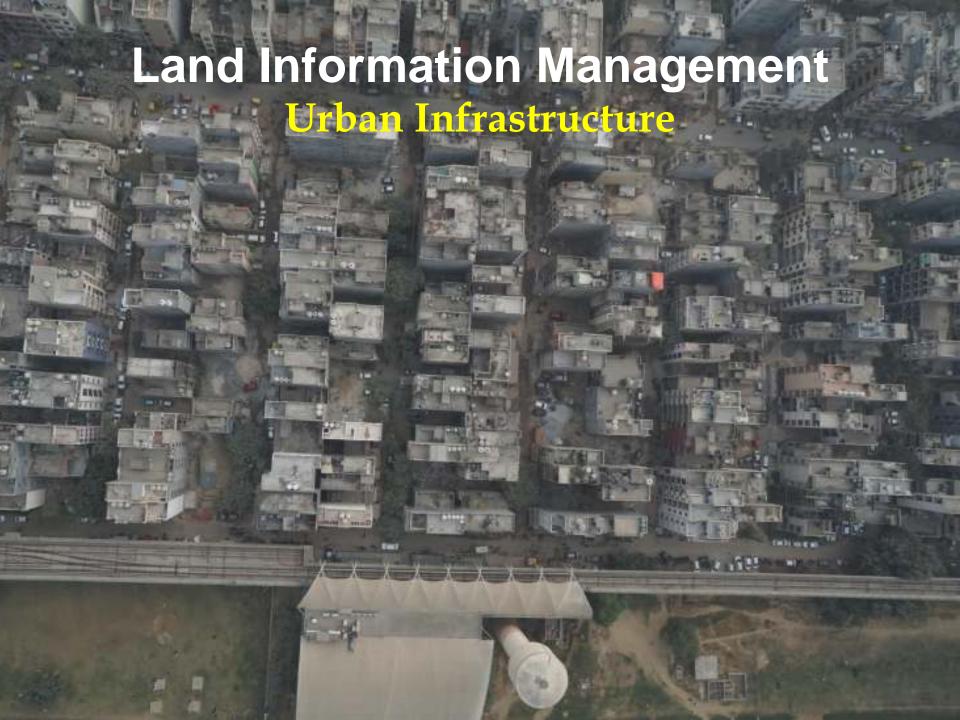
Project UDAAN 5cm Resolution



High Granularity



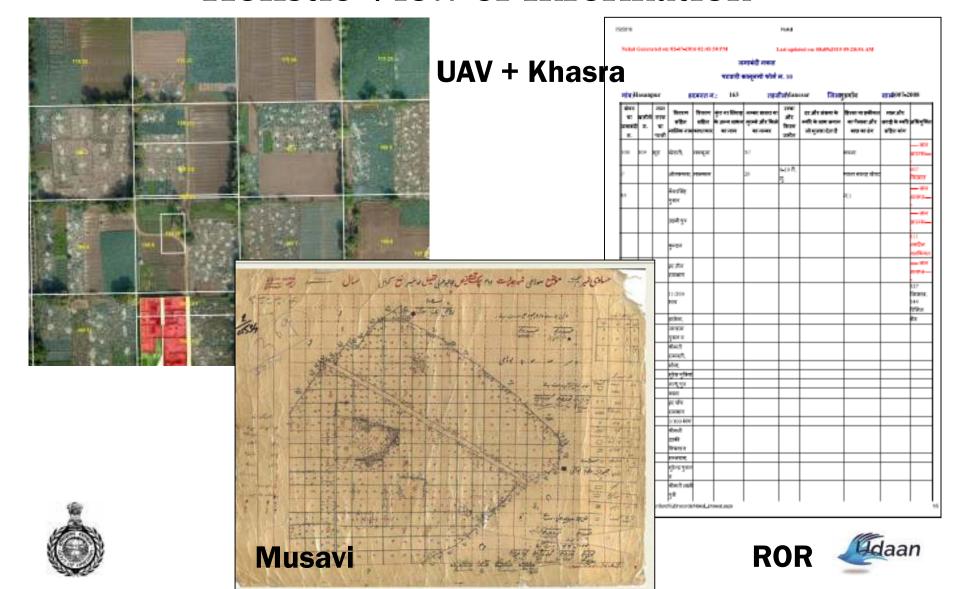






Demolish Information Asymmetry

Holistic View of Information











Khasra Map

Overlaid on Ultra High-Res Orthomosaic







Khasra Map

Overlaid on Ultra High-Res Orthomosaic







Khasra Map

Overlaid on Ultra High-Res Orthomosaic





Online ROR

Data from 2000 to 2016 Computerised

7/2/2016 Nakal

Nakal Generated on: 02-07-2016 02:45:50 PM Last updated on: 08-09-2015 09:28:56 AM

जमाबंदी नकल

पटवारी कानूनगो फोर्म न. 10

गांव:Hasanpur हदबस्त न.: 163 तहसीलें Manesar जिलमुडगाँव साल् 2007-2008

खेवट या जमाबंदी न.	खतौनी न.	या	विवरण सहित मालिक नाम	सहित	के अन्य साधन	नम्बर खसरा या मुरब्बे और किले का नम्बर	आर	दर और संख्या के ब्यौरे के साथ लगान जो मुजारा देता है	हिस्सा या हकीयत का पैमाना और बाछ का ढंग	अभियुक्ति
100	109	भूरा	खेराती,	मकबूजा		5//			कब्जा	—_ लाल आरम्भ— -
//			ओमप्रकाश,	मालकान		26	0-19 गै. म्.		पडता बशरह खेवट	607 विरासत





Online ROR

Data from 2000 to 2016 Computerised



UNDER THE PROVISION OF:

Haryana Space Applications Centre Department of Land Resources Government of India



DRS Home

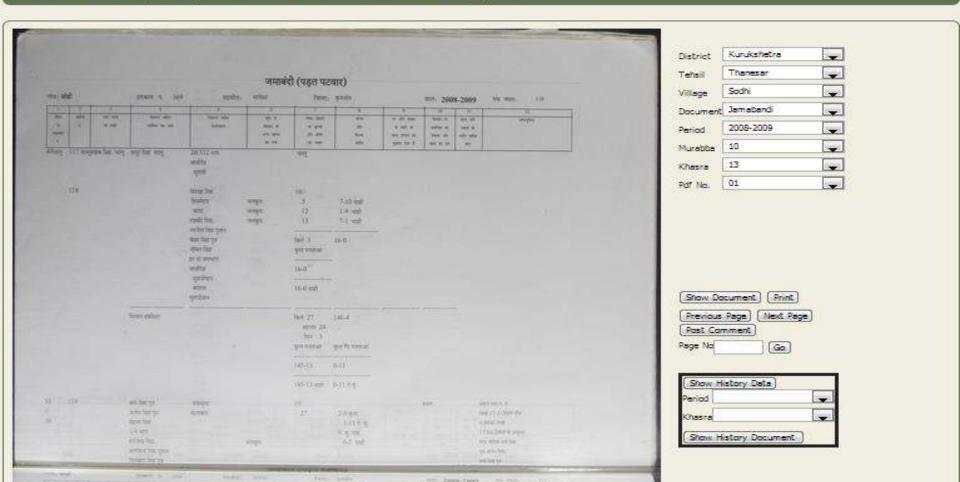
Мар

Upload

View Remarks

Profile

Logout



Land Information ManagementSohna Property Tax - Residential



Land Information ManagementSohna Property Tax - Commercial



Land Information Management

Civil Infrastructure - Facilities



Land Information Management

Civil Infrastructure - Waterbodies & Roads

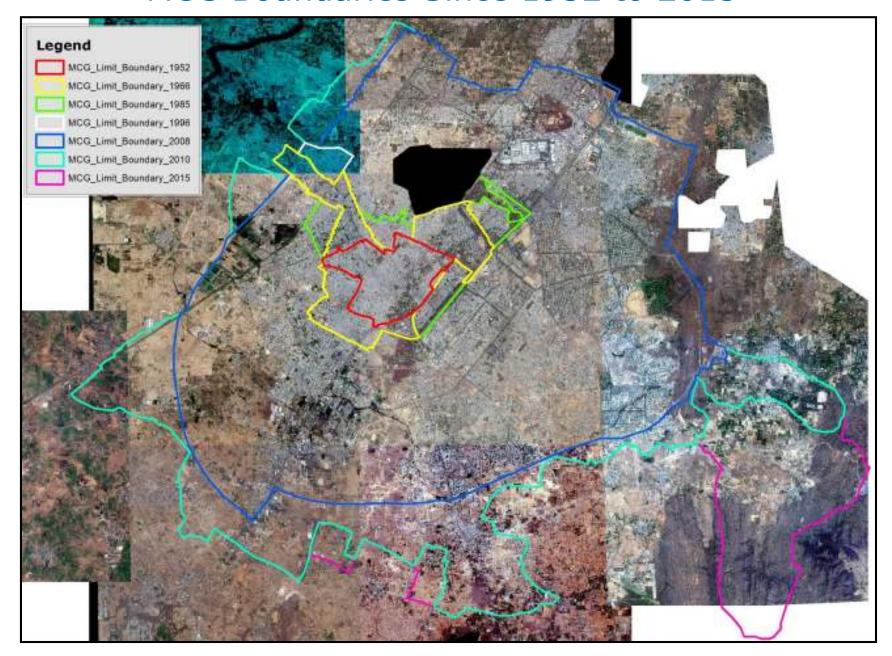


4. CITY LEVEL: GURGAON

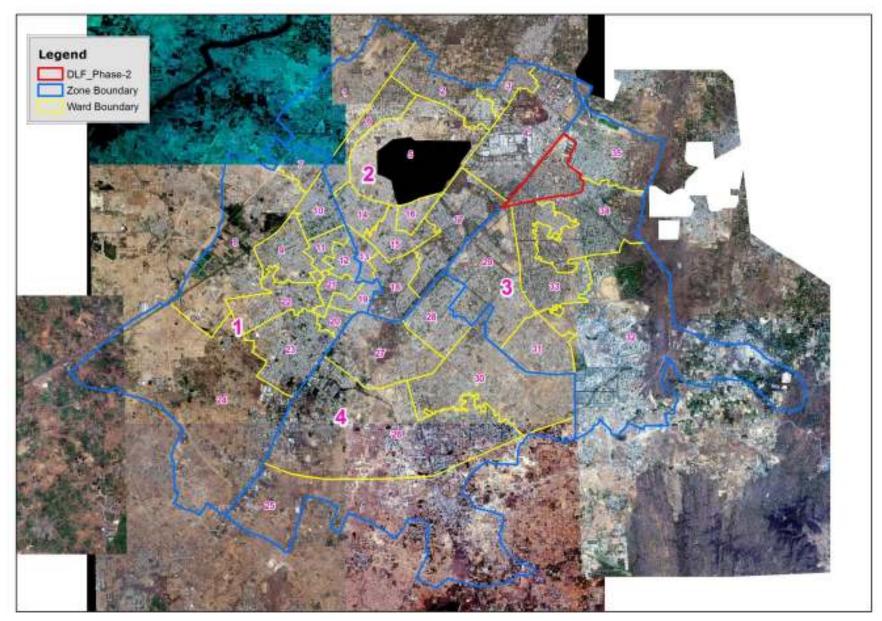
Property Tax and Disaster Management

GIS APPLICATIONS

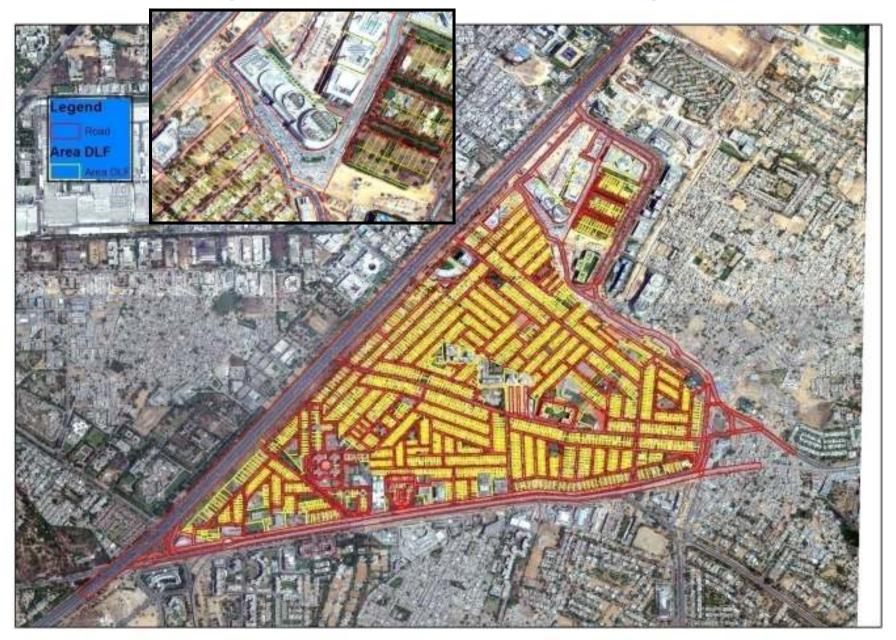
MCG Boundaries Since 1952 to 2015



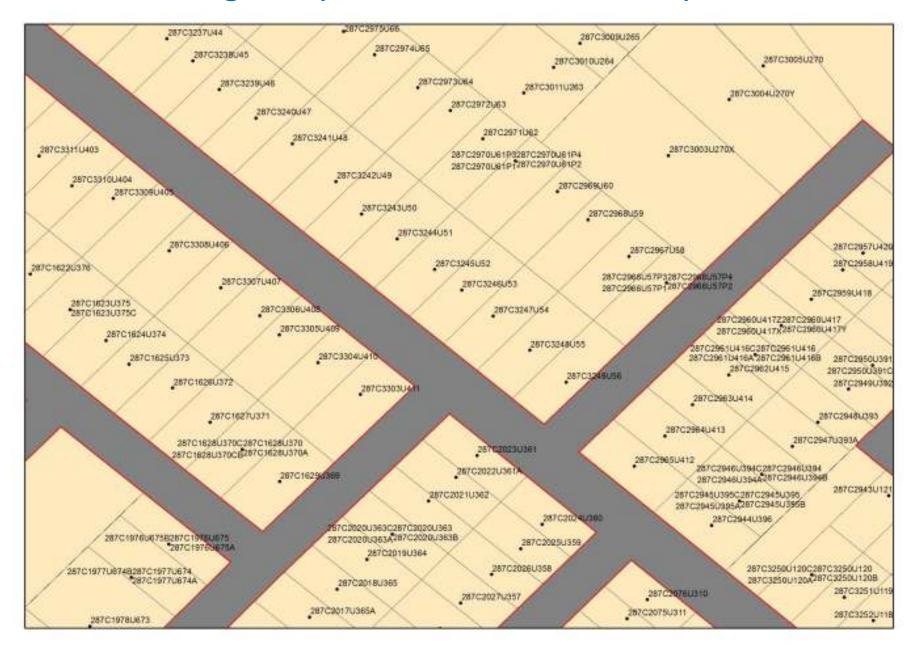
Digitization On Satellite Image



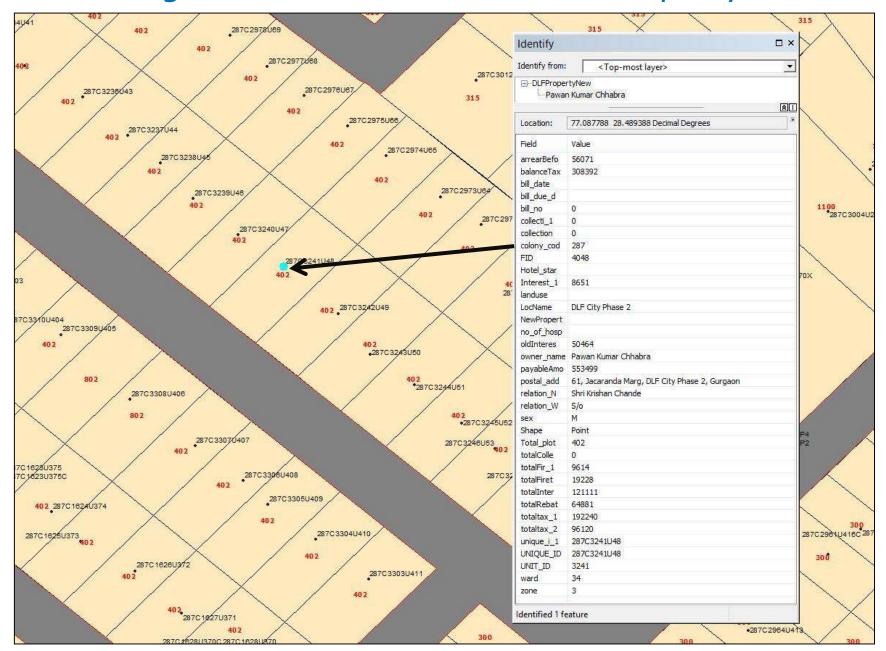
Digitization On Satellite Image



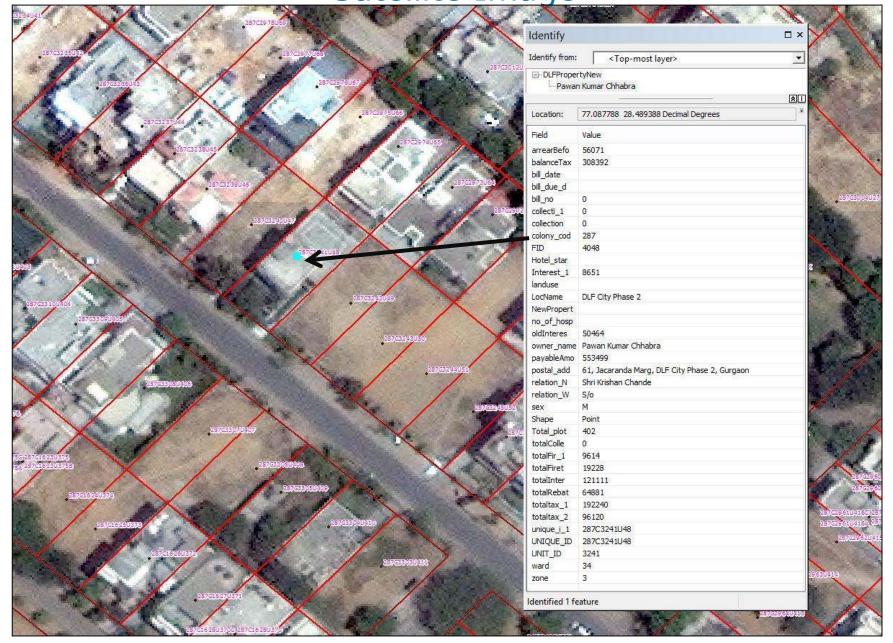
Geo-Linking of Spatial Data with Non Spatial Data



Retrieving Information of Individual Property Holder



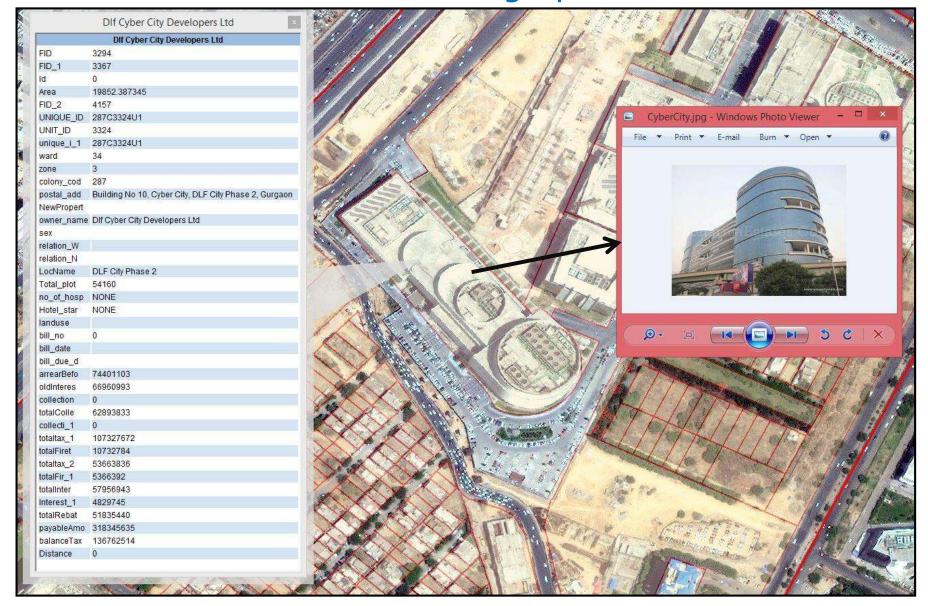
Displaying Information of Property Holder Over Satellite Image



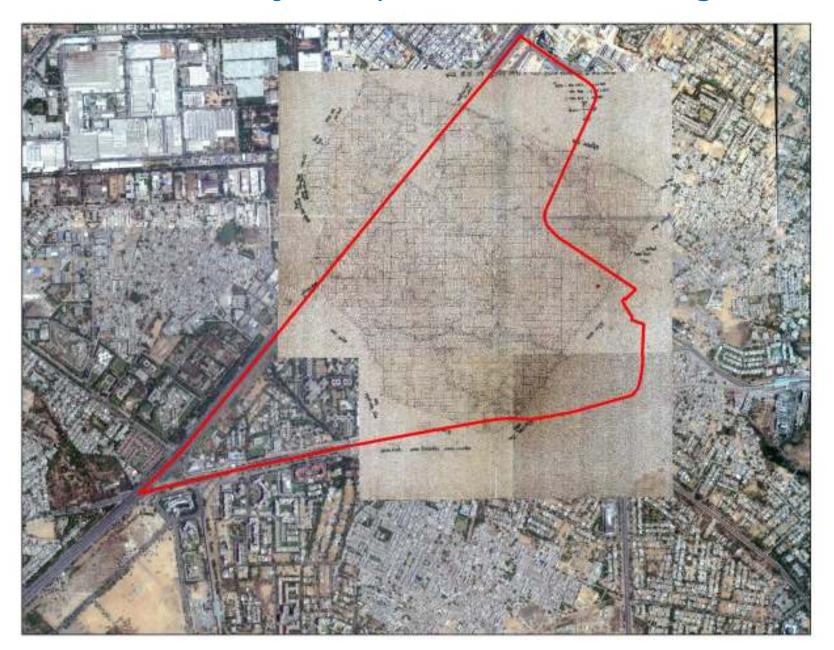
Field Survey and Ground Verification



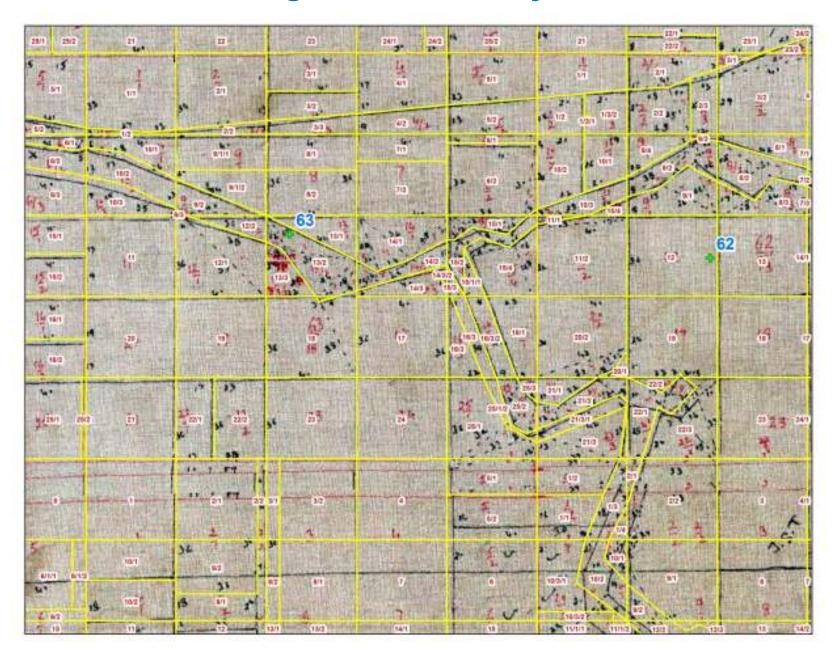
Displaying Information of Individual Area Detail with Photograph



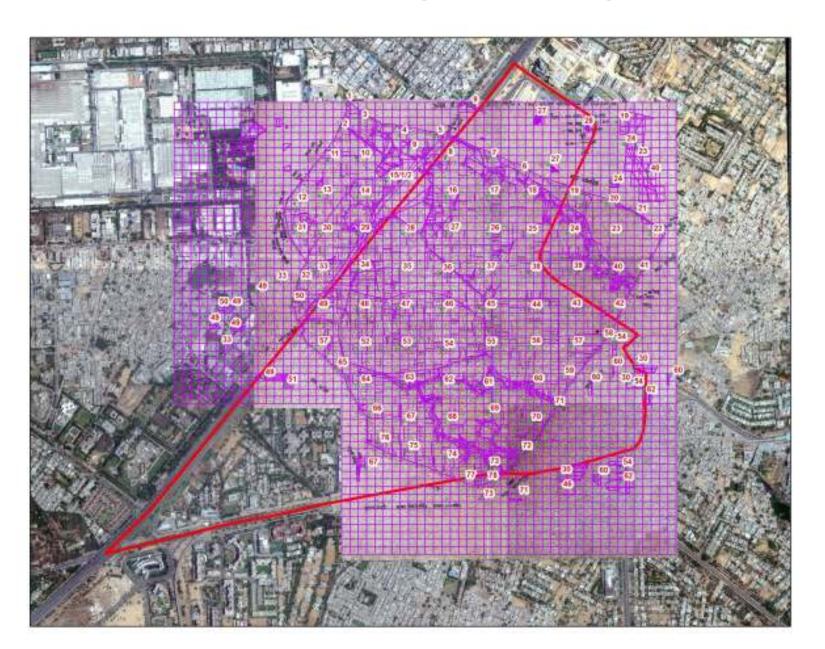
Mussavi/Sajra Map over Satellite Image



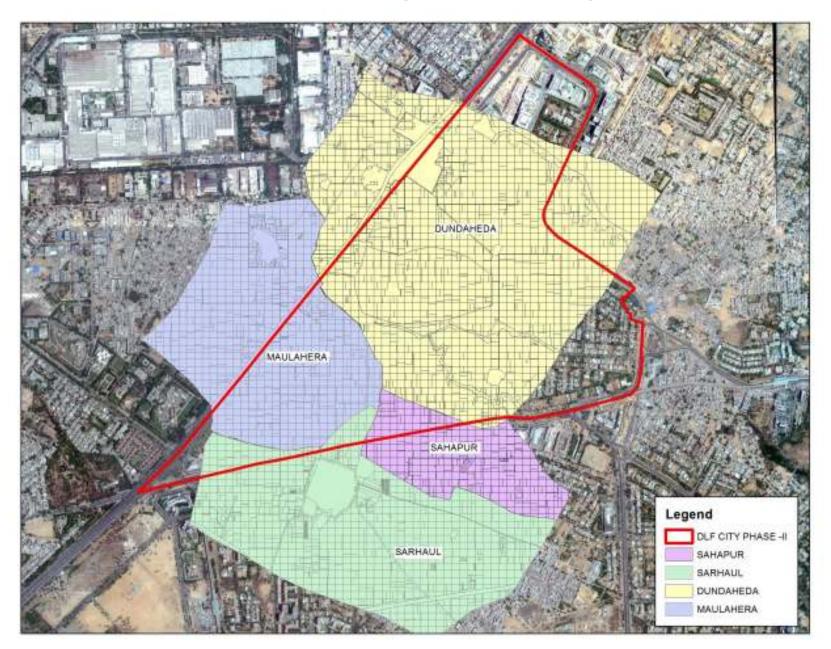
Digitization Of Sajra



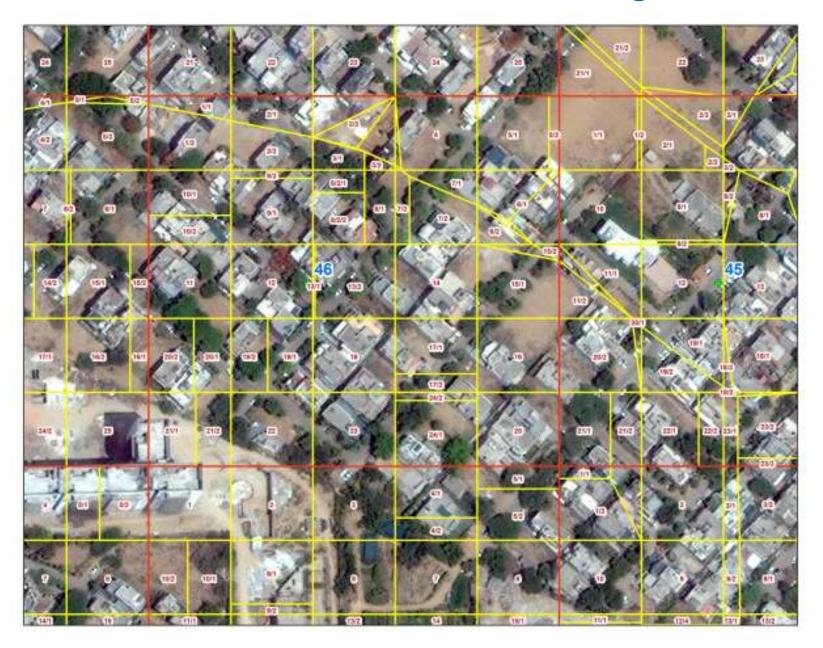
Complete Digitized Village



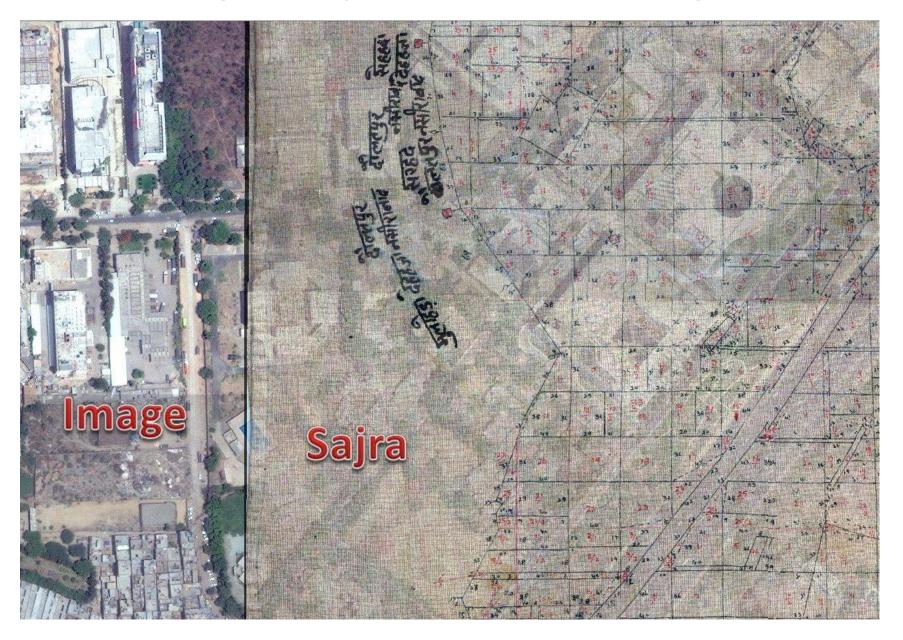
Mosaic of Digitized Village



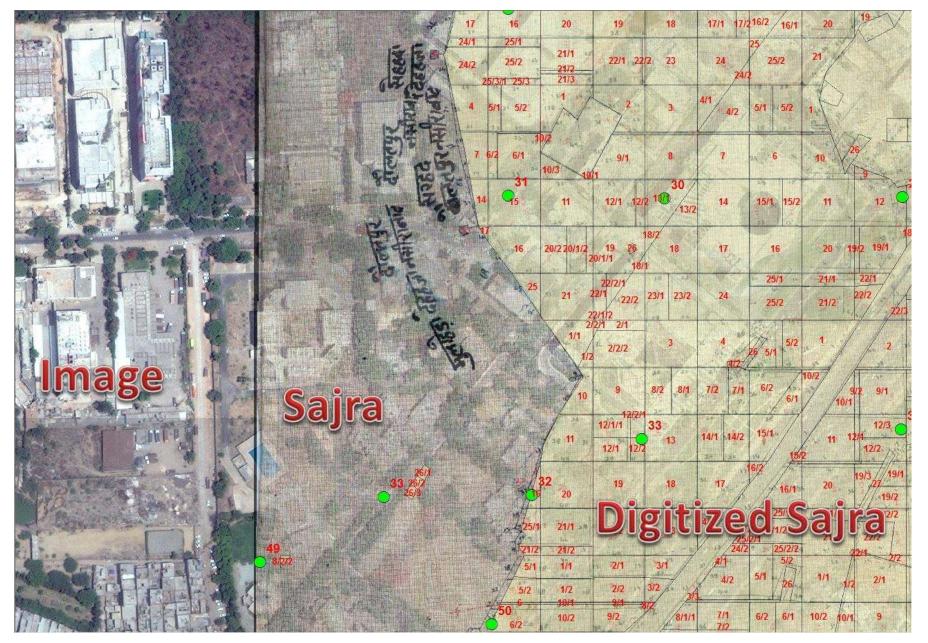
Khasra Details on Satellite Image



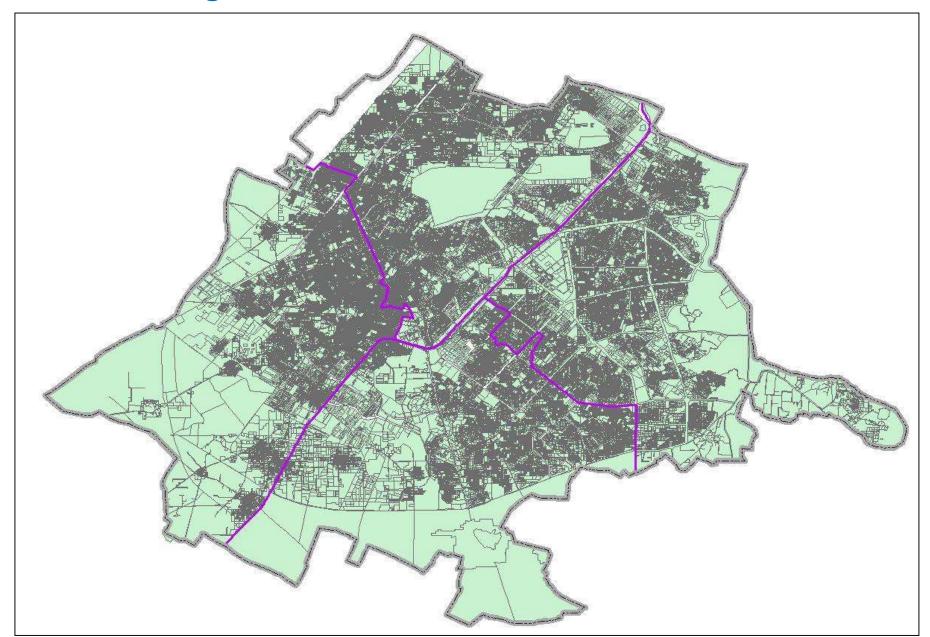
Original Sajra With Satellite Image



Original Sajra + Digitized Sajra over Satellite Image



Digitization of Parcels of Entire MCG

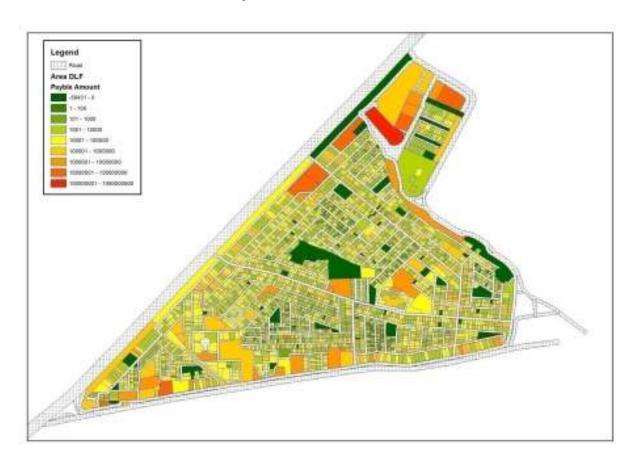


GIS Application in Property Tax Analysis

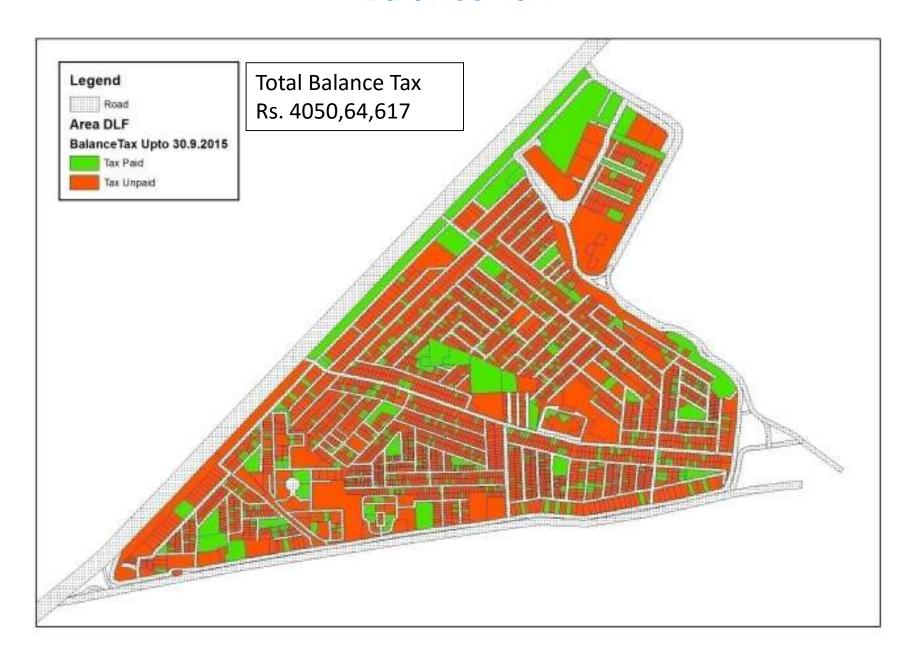
- Thematic details on -
 - Excluded Properties
 - Property Tax
 - Bills Sent
 - Arrears (Previous Years)
 - Collection
 - Other Collection
 - Defaulters
 - New Urban Development

Tax Assessment - Due

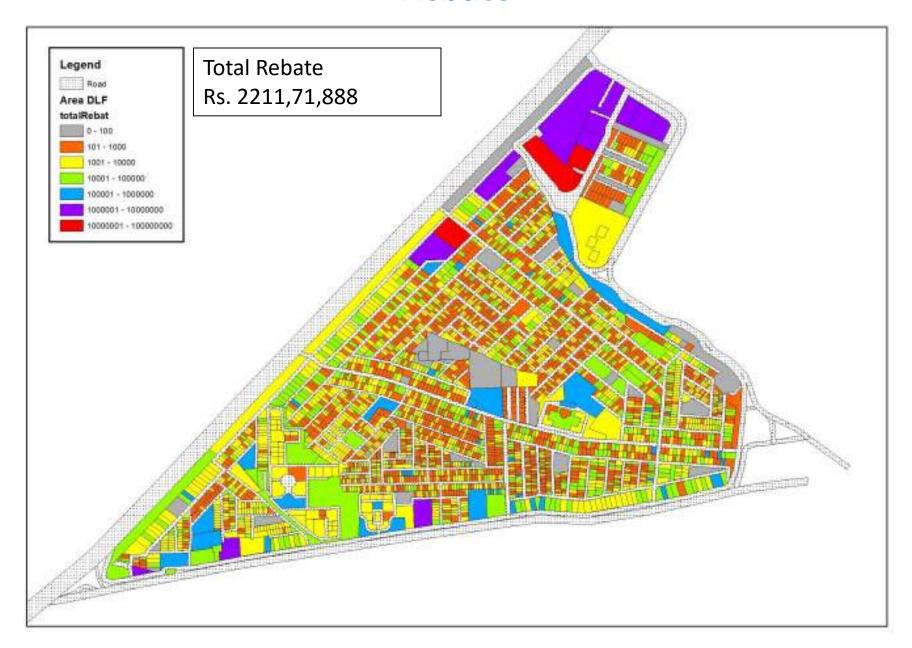
• Payable Amount - Total Payable Amount Rs.11832,65,467



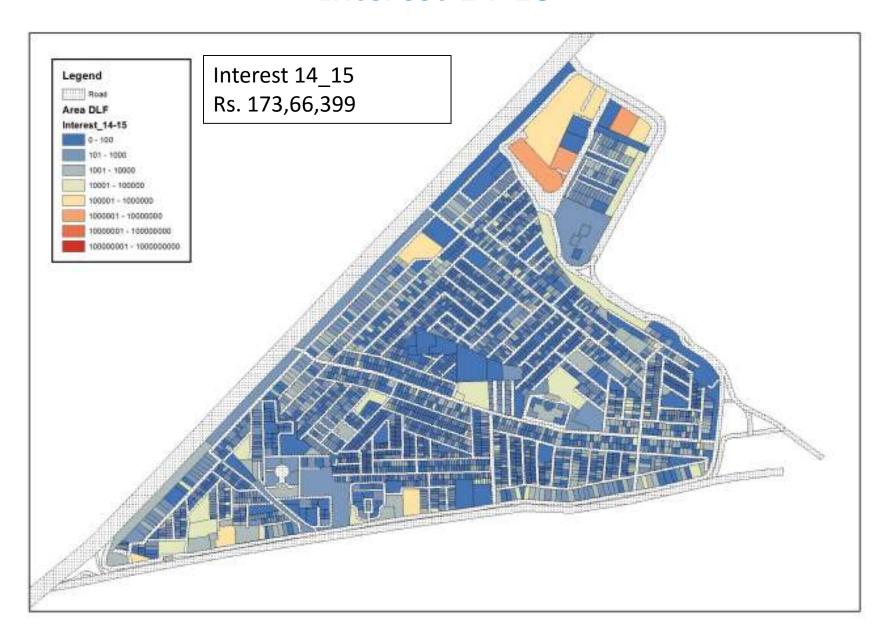
Balance Tax



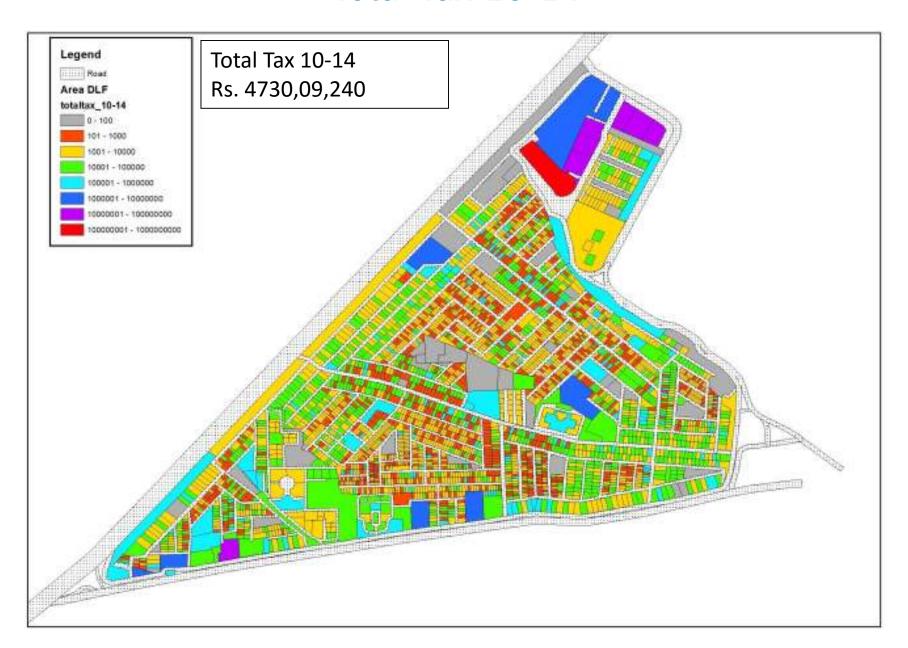
Rebate



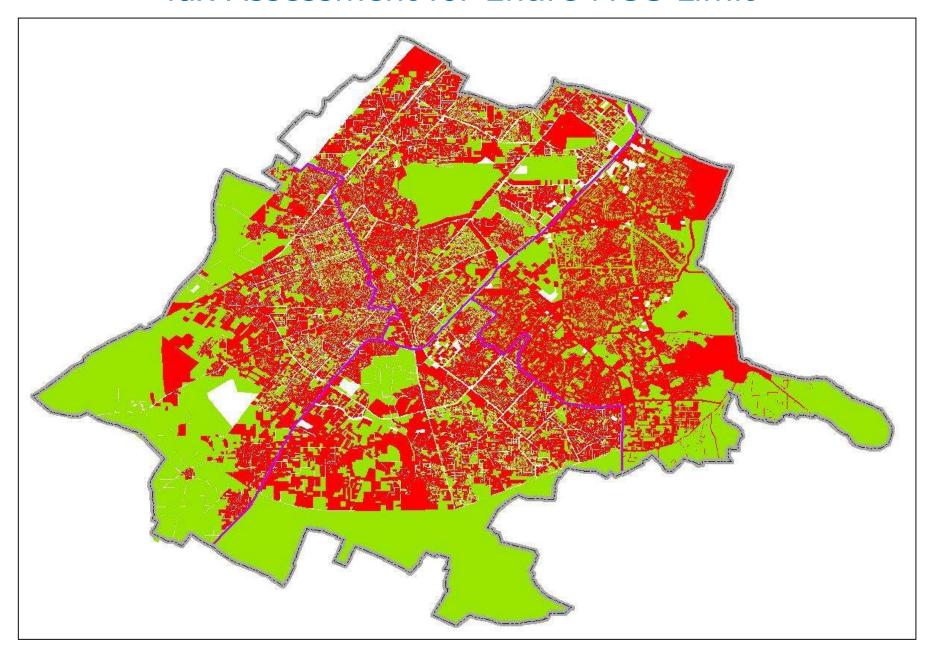
Interest 14-15



Total Tax 10-14



Tax Assessment for Entire MCG Limit

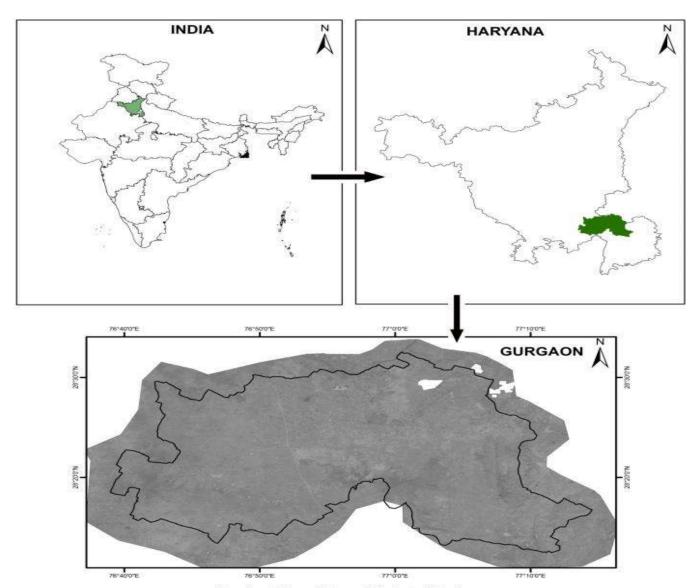


4. CITY LEVEL: GURGAON

Disaster Management & Infrastructure Planning

GIS APPLICATIONS

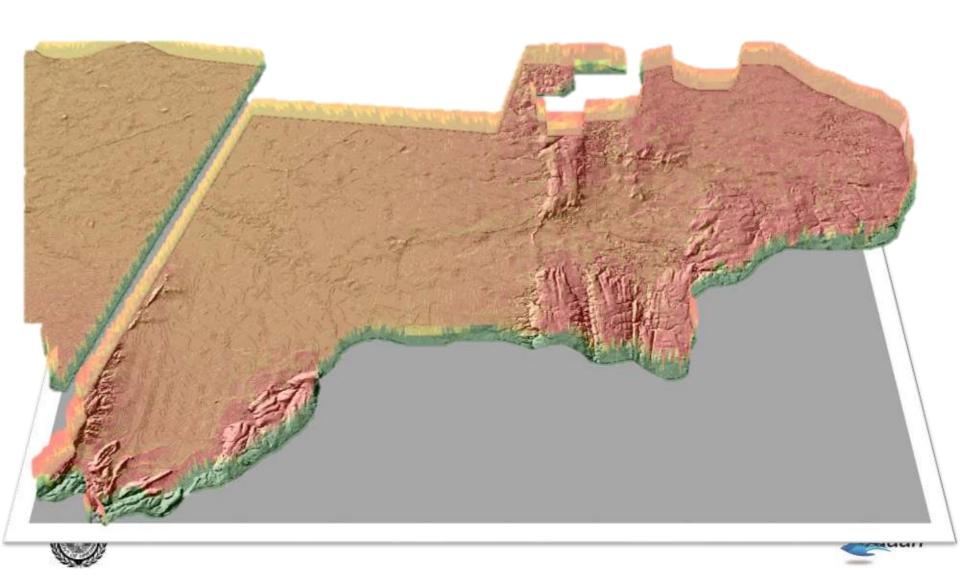
STUDY AREA







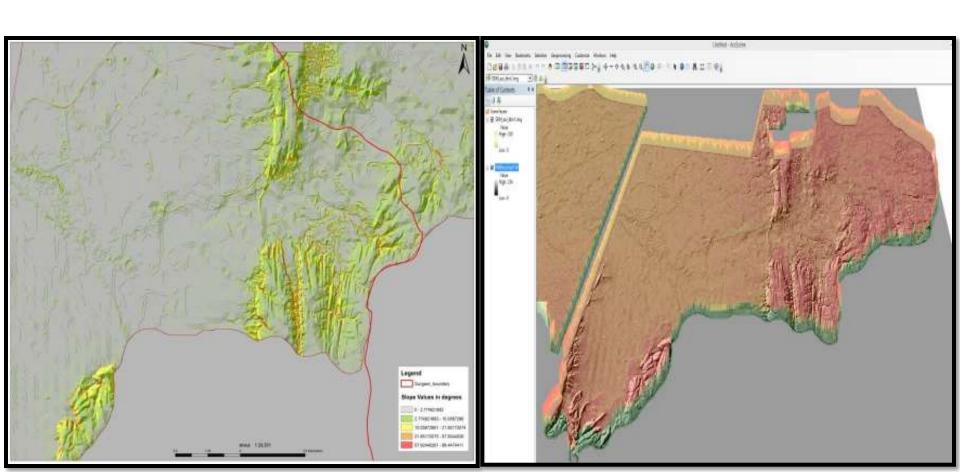
3D VIEW OF THE AFFECTED AREA



AS SEEN ON THE GIS SOFTWARE

2D View of the area

3D View of the area



Digital Elevation Model of Gurgaon DaulatabadBhimgarh Nathupu Sirhaul •Gurgaon Rs Sikand ur Ghosi Dhanwanpur Gurgaon Masani Sukhrali Chakarpur Matikhera Madanpuri Gurgaon Chandarnagar Basai Salokhra Kadpur Daulatpur Kanhai Garauli Kalan Naharpur Rupa Jharsa Garauli Khurd Khandsa Wazirabad Swalpahari Islampur Dhani Gwalpaha Shamashpur Balola ta Kanagarpur Tikri Muhammadpur Baharampur Tigra Sihi Narsinghpur Dhani Fazilpur Ghasaula Alahawas Kherki Daula **Baharampur Naya** Baharamour Purana Silani Medawas Badshahpur Qadirpur Darbaripur Nurpur Jharsa Ramgarh Khera Hasanpur • Rampur Palra **Dhani Rampur** Dhumaspur Baniawala Johan Buraihara Shikohpur Sakatpur Nayagaon Legend
• Wlage name gurgeon 204 - 209 210 - 218 ngpur 219 - 226 Bhaundsi 227 - 235 238 - 245 246 - 254 Rithaui 255 - 262 263 - 269 Saihajawas 270 - 277 278 - 285 Gairatpur Bas 286 - 293 Bahalpa 294 - 299 300 - 305 306 - 312 Ghamrauj Mehandwara Bara Johan 1:100,000

77°0'0"E

77°1'0"E

77°3'0"E

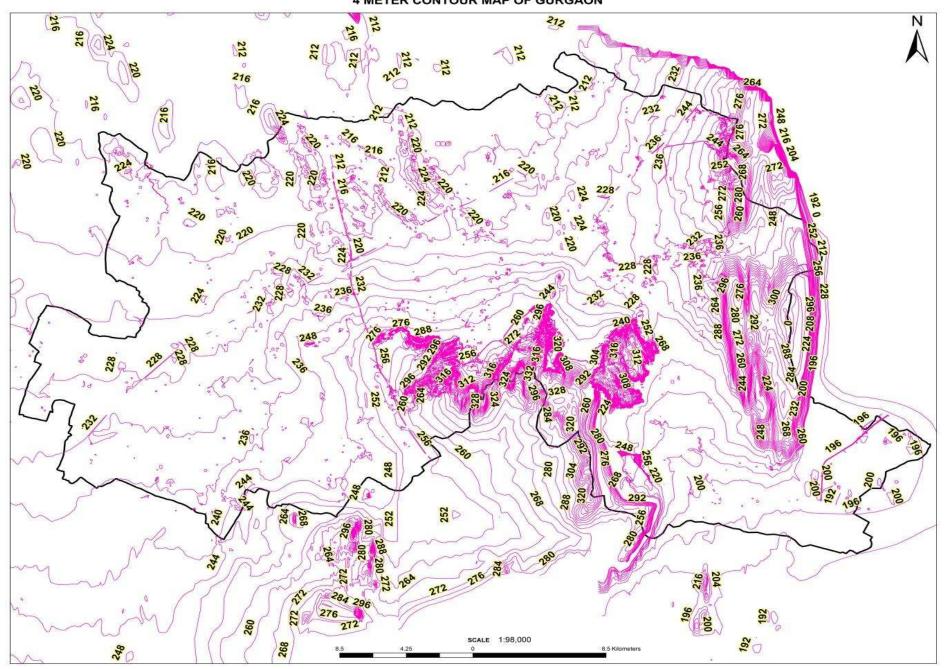
77°4'0"E

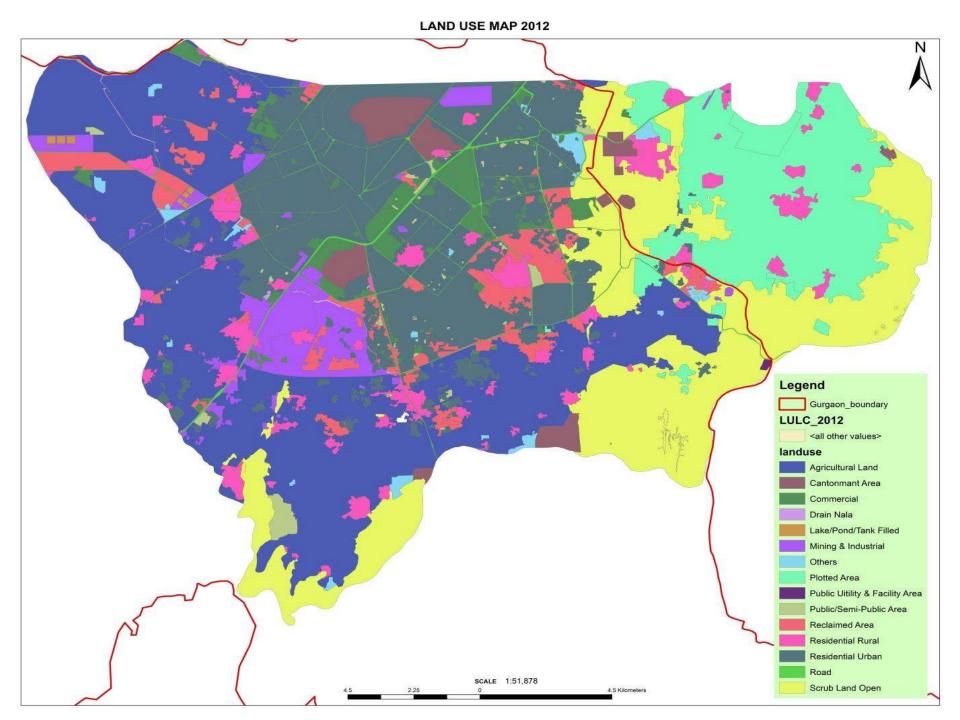
76°59'0"E

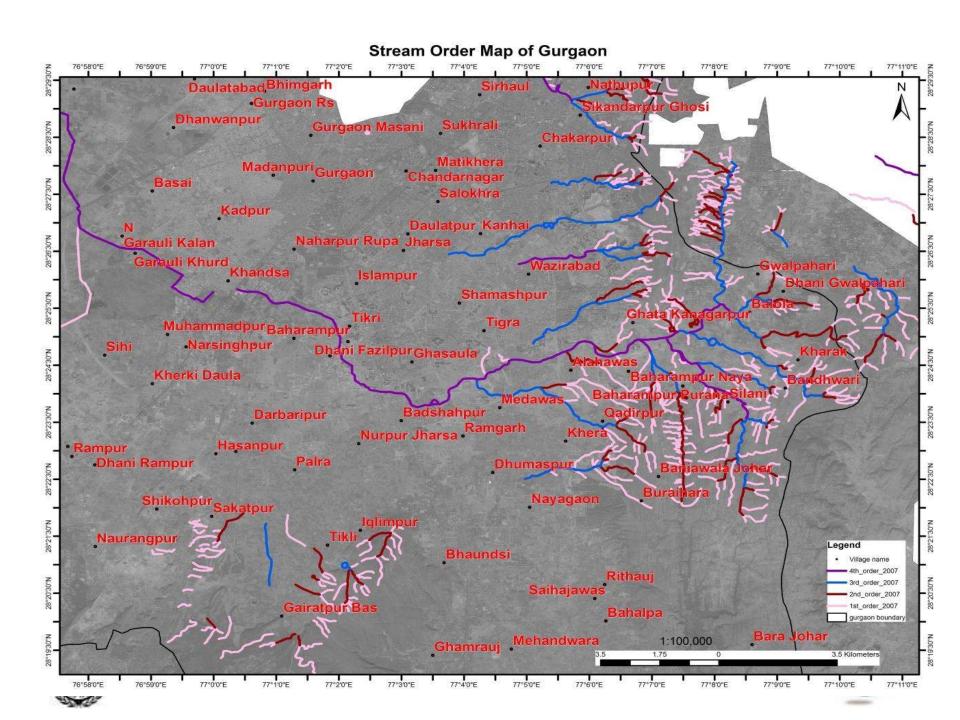
3.5 Kilometers

77°10'0"E

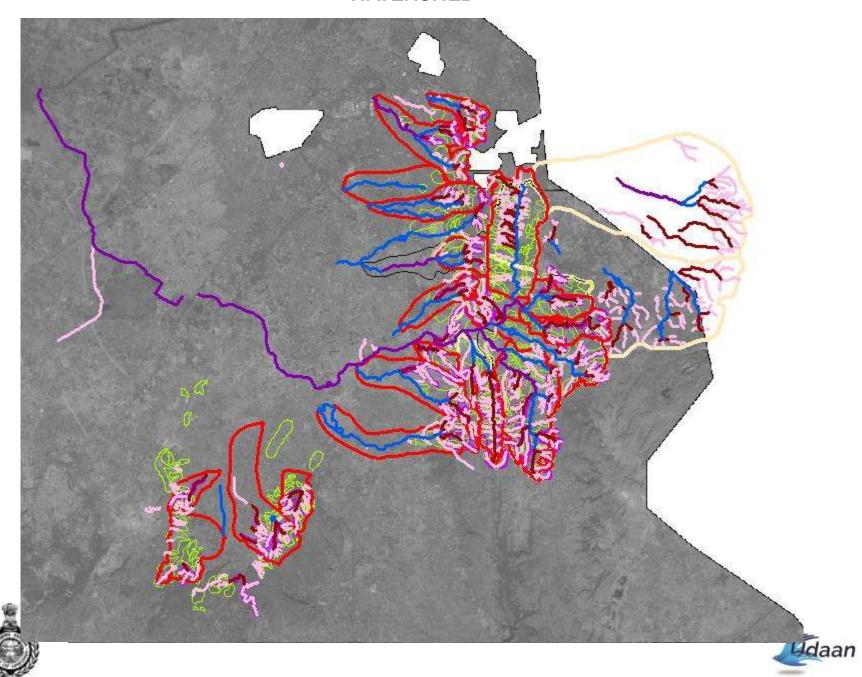
4 METER CONTOUR MAP OF GURGAON



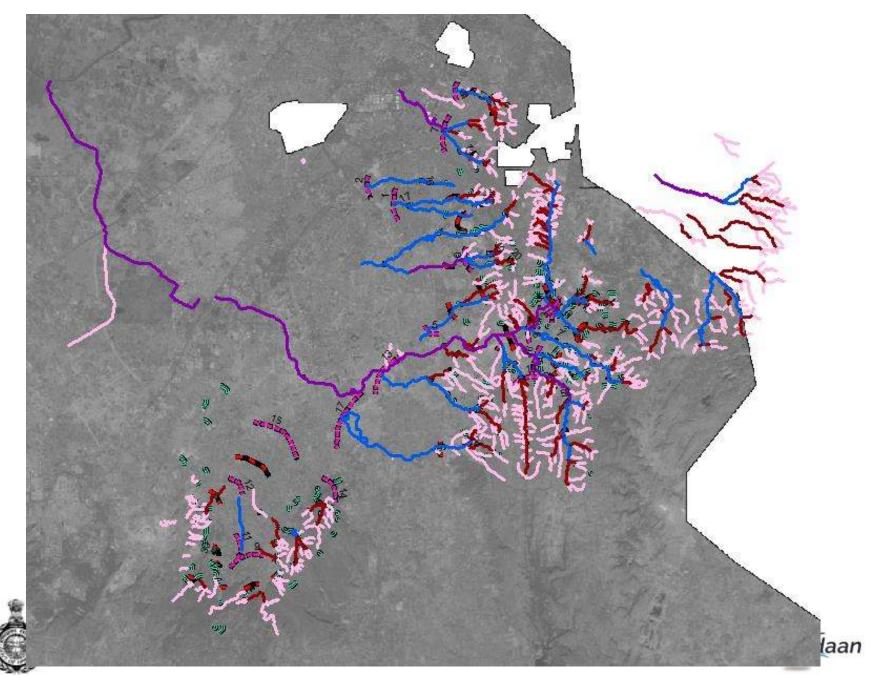




WATERSHED



PROPOSED CHECK DAMS



THANK YOU



