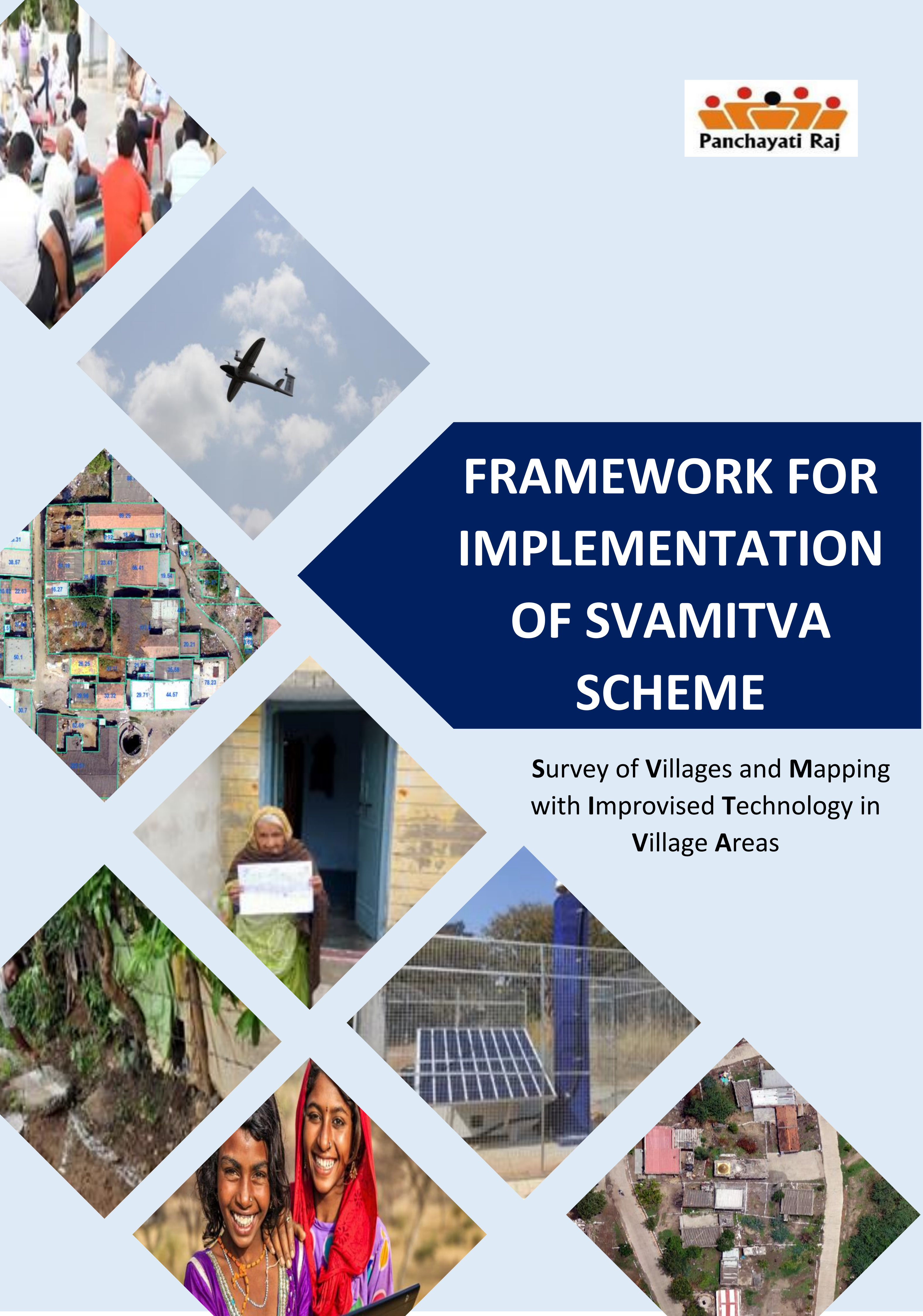


Panchayati Raj

FRAMEWORK FOR IMPLEMENTATION OF SVAMITVA SCHEME

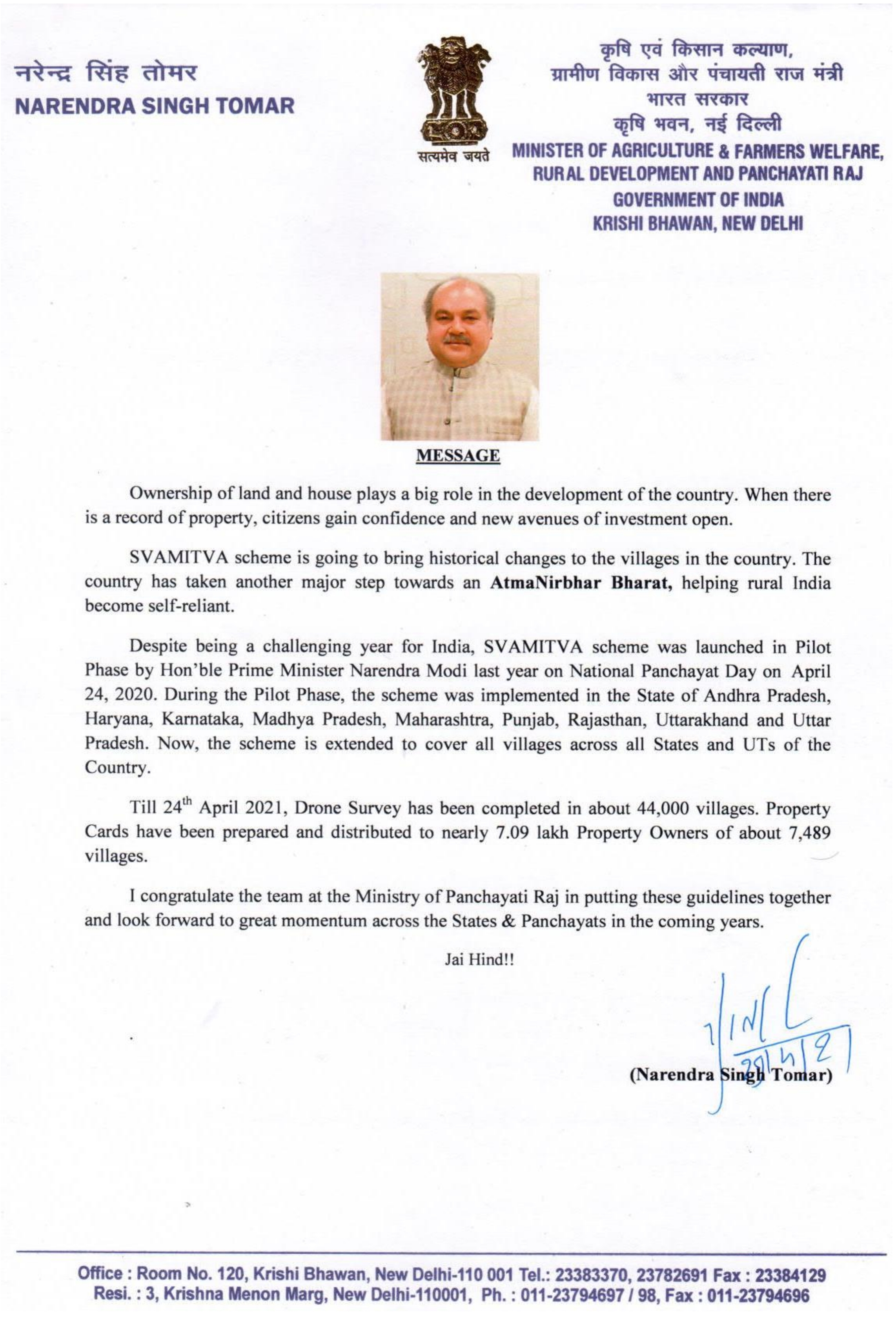
Survey of **V**illages and **M**apping
with **I**mprovised **T**echnology in
Village **A**reas

FRAMEWORK FOR IMPLEMENTATION OF SVAMITVA SCHEME

SURVEY OF VILLAGES AND MAPPING WITH IMPROVISED TECHNOLOGY IN VILLAGE AREAS

GUIDELINES (2021- 2025)

Panchayati Raj



नरेन्द्र सिंह तोमर
NARENDRA SINGH TOMAR

सत्यमेव जयते

कृषि एवं किसान कल्याण,
ग्रामीण विकास और पंचायती राज मंत्री
भारत सरकार
कृषि भवन, नई दिल्ली
MINISTER OF AGRICULTURE & FARMERS WELFARE,
RURAL DEVELOPMENT AND PANCHAYATI RAJ
GOVERNMENT OF INDIA
KRISHI BHAWAN, NEW DELHI

MESSAGE

Ownership of land and house plays a big role in the development of the country. When there is a record of property, citizens gain confidence and new avenues of investment open.

SVAMITVA scheme is going to bring historical changes to the villages in the country. The country has taken another major step towards an **AtmaNirbhar Bharat,** helping rural India become self-reliant.

Despite being a challenging year for India, SVAMITVA scheme was launched in Pilot Phase by Hon'ble Prime Minister Narendra Modi last year on National Panchayat Day on April 24, 2020. During the Pilot Phase, the scheme was implemented in the State of Andhra Pradesh, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttarakhand and Uttar Pradesh. Now, the scheme is extended to cover all villages across all States and UTs of the Country.

Till 24th April 2021, Drone Survey has been completed in about 44,000 villages. Property Cards have been prepared and distributed to nearly 7.09 lakh Property Owners of about 7,489 villages.

I congratulate the team at the Ministry of Panchayati Raj in putting these guidelines together and look forward to great momentum across the States & Panchayats in the coming years.

Jai Hind!!

29/4/21

(Narendra Singh Tomar)

Office : Room No. 120, Krishi Bhawan, New Delhi-110 001 Tel.: 23383370, 23782691 Fax : 23384129
Resi. : 3, Krishna Menon Marg, New Delhi-110001, Ph. : 011-23794697 / 98, Fax : 011-23794696

सुनील कुमार, आई.ए.एस.
SUNIL KUMAR, IAS

सत्यमेव जयते

सचिव
भारत सरकार
पंचायती राज मंत्रालय
SECRETARY
GOVERNMENT OF INDIA
MINISTRY OF PANCHAYATI RAJ

MESSAGE

The future of India lies in its villages- Mahatma Gandhi

Even after 70 years of Independence, villages are at the core of the country's soul. Gandhiji wanted villages to attain Moral, Social and Economic Independence. He was enamoured Of Immemorial 'Village Republics' and has once said "*The true India is to be found not in its few cities, but in its seven hundred thousand villages. If the villages perish, India will perish too*."

In today's time of Global economic uncertainties, transformation of the villages & the Panchayats by ensuring the basic quality of life in the villages is the need of the hour. An economic boost in the villages is also germinal to India's vision of achieving global power status. Therefore, the ***SVAMITVA* scheme** is being launched with a resolve to enable economic progress of Rural India by providing "Record of Rights" to every rural household owner. This would also support preparation of better-quality Gram Panchayat Development Plans (GPDPs), utilising the maps created under the scheme. The spatial data captured under this programme would provide decision support system, and helps in development, and execution of planning activities.

The scheme provides an opportunity for dispute resolution, objective planning, revenue collection and capitalisation of residential property. The onus is on us to effect adequate changes in our laws, guidelines and systems to fulfill these promises.

I would also like to thank experts from Property Rights Research Consortium for their contribution in evaluation of Scheme and providing valuable insights for further improvement of Scheme implementation.

(Sunil Kumar)

कृषि भवन, डॉ राजेंद्र प्रसाद रोड, नई दिल्ली–110001, KRISHI BHAWAN, DR. RAJENDRA PRASAD ROAD, NEW DELHI-110001
Tel.: 011-23389008, 23074309 • Fax: 011-23389028 • E-mail: secy-mopr@nic.in

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ABBREVIATIONS

Abadi areas	The abadi area includes inhabitant land, inhabited areas contiguous to Abadi and wadis/basties in rural areas
CORS	Continuous Operation Reference System
DEM	Digital Elevation Model
DGCA	Directorate General of Civil Aviation
DILRMP	Digital India Land Records Modernization Programme
DoLR	Department of Land Records, Ministry of Rural Development
DR	Disaster Recovery
DTM	Digital Terrain Model
GCPs	Ground Control Points (GCPs)
GIS	Geographic Information System
GoI	Government of India
GP	Gram Panchayat
GPDP	Gram Panchayat Development Plan
GSD	Ground Sampling Distance
GSM	Global System for Mobile Communication
IEC	Information, Education and Communication
LPM	Land Parcel Maps
MHA	Ministry of Home Affairs
MoD	Ministry of Defence
MoPR	Ministry of Panchayati Raj
MoU	Memorandum of Understanding
NPMU	National Programme Management Unit
OGC	Open Geospatial Consortium
ORI	Ortho-rectified images
PPK	Post Point Kinematic
RGB	Red Green Blue
RTK	Real Time Kinematic
SoI	Survey of India
SPMU	State Programme Management Unit
UAV	Unmanned Aerial Vehicle
UPS	Uninterruptible power supply
UT	Union Territory
UTM	Universal Transverse Mercator
WGS 84	World Geodetic System 1984

EXECUTIVE SUMMARY

The Government of India has decided to implement a scheme for surveying the land parcels in rural inhabited area using Drone technology. The survey shall be done across the country in a phase wise manner over the period of five years (2020 - 2025).

The scheme is a Central Sector Scheme titled "SVAMITVA – Survey of villages and mapping with improvised technology in village areas"

This is first time ever initiative that such a large-scale exercise involving most modern drone technology is being carried out to benefit millions of rural property owners covering all villages across the country. The outcome from the scheme would include updating the 'record-of-rights' in the revenue/property registers and issuance of property cards to the property owners. This would facilitate monetization of rural residential assets for credit and other financial services. Further, this would also pave the way for clear determination of property tax, which would accrue to the GPs leading where devolved.

The main activities under the Scheme are:

i. Establishment of Continuous Operating Reference System

   CORS is network of reference stations that provide a virtual base station that allows access long-range high-accuracy network RTK corrections with centimetre-level horizontal positioning in real-time. CORS network supports in accurate Geo-referencing, ground truthing and demarcation of lands.

ii. Large Scale mapping using Drones

   Rural inhabited (abadi) area would be mapped by Survey of India using drone Survey. It would generate high resolution and accurate maps to confer ownership property rights. Based on these maps or data, property cards would be issued to the rural household owners

iii. Awareness program to sensitize the rural population about the surveying methodology and its benefits

iv. Setting of Programme management unit at National and State level

v. Development/ Maintenance of Scheme Dashboard and integration of drone survey Spatial data/maps with Ministry’s Spatial planning application to support in planning at local level

vi. Documentation of best practices/ conducting National and Regional workshops

The following stakeholders would be involved in carrying out the scheme:

i. Nodal Ministry (Ministry of Panchayati Raj), Govt of India.

ii. Survey of India (Technology Implementation Agency)

iii. State Revenue Department

iv. State Panchayati Raj Department

v. Local district authorities.

vi. Property owner

vii. Gram Panchayat (GP).

viii. National Informatics Centre (NIC) – GIS Division

ix. Other line departments having assets in Rural inhabited areas (if any) for preparing comprehensive database.

For monitoring purpose, a four-layer monitoring and evaluation framework shall be put in place for timely monitoring, reporting and course corrections (wherever necessary).

A pilot of the scheme is already in progress in 09 states viz. Haryana, Karnataka, Maharashtra, Madhya Pradesh, Uttarakhand, Uttar Pradesh , Punjab, Rajasthan and Andhra Pradesh and as an outcome of the pilot, property cards have been distributed to nearly 3 lakh beneficiaries till Feb’21.

Chapter-1

RATIONALE FOR THE SCHEME

1.1. Introduction

The Government of India has decided to implement the Central Sector scheme "***SVAMITVA***". The Scheme aims to provide an integrated property validation solution for rural India. The demarcation of abadi areas (*the abadi area includes inhabitant land, inhabited areas contiguous to Abadi and wadis/basties in rural areas*) would be done using Drone Surveying technology, with the collaborative efforts of the Ministry of Panchayati Raj, State Panchayati Raj Department, State Revenue Departments and Survey of India.

This would provide the 'Record of Rights' to village household owners possessing houses in inhabited rural areas in villages which, in turn, would enable them to use their property as a financial asset for taking loans and other financial benefits from Banks. Further, this would also enable updation of property and asset register to strengthen tax collection and demand assessment process of Gram Panchayats in States where Property tax is devolved to the Gram Panchayats.

Apart from demarcation of individual rural property, other Gram Panchayat and community assets like village roads, ponds, canals, open spaces, school, Anganwadi, Health sub-centres, etc. would also be surveyed and GIS maps would be created. Further, these GIS maps and spatial database would also help in preparation of accurate work estimates for various works undertaken by Gram Panchayats and other Departments of State Government. These can also be used to prepare better-quality Gram Panchayat Development Plan (GPDP).

1.2. Need for the Scheme

Survey of rural land in India for Settlement and record of rights had last been completed many decades back and moreover, ABADI (inhabited) area of villages were not surveyed/ mapped in most States. Hence, in the absence of a legal document, the owner of the property in the rural habitations are not able to leverage their own property as a financial asset acceptable by the banks for the purpose of providing loans and other financial assistance. In order to provide the legal right of the property to the household owner in a time transparent and cost-effective manner, there is a need of latest Drone Technology and Continuously Operating Reference Station (CORS) technology for capturing images.

The Survey of India (SoI) prepares National Topographic database on all scales, leveraging emerging technologies for topographical mapping at various scales as per user requirements using Airborne-Photography, Satellite Imageries (Stereo/Mono), Airborne-LIDAR, High Resolution Satellite Imageries (HRSI), Unmanned Air Vehicles (UAV) or Drone platform with Optical/Infra-Red/LIDAR sensors. High resolution mapping at very large scales for revenue, urban and water resources requirements has been in forefront for the past 3-4 years and SoI has evolved standard operating procedures for acquiring very high-resolution aerial images and preparing very large-scale maps at 1:500 scale using Drones. The high resolution and `accurate image base maps have facilitated creation of the most durable record of property holdings in these areas with no legacy revenue records. Such accurate image base maps provide a clear demarcation of land holdings in a very short frame of time compared to on ground physical measurement and mapping of the land parcels. Further, these maps are free from measurement errors to a very large extent, which is not the case with physical on ground measurements.

Such maps provide a visual aid to the landowners as well as to the revenue officials for identifying and resolving any property dispute and are also an invaluable tool for local level planning.

Chapter- 2

OBJECTIVES AND COVERAGE OF SCHEME

2.1. Objectives of the Scheme

The scheme seeks to achieve the following objectives: -

i. Creation of accurate land records for rural planning and reduce property related disputes.
ii. To bring financial stability to the citizens in rural India by enabling them to use their property as a financial asset for taking loans and other financial benefits.
iii. Determination of property tax, which would accrue to the GPs directly in States where it is devolved or else, add to the State exchequer.
iv. Creation of survey infrastructure and GIS maps that can be leveraged by any department for their use.
v. To support in preparation of better-quality Gram Panchayat Development Plan (GPDP) by making use of GIS maps.

For achieving the above objectives in full measure, certain actions are necessitated by States that are covered under Section 14.

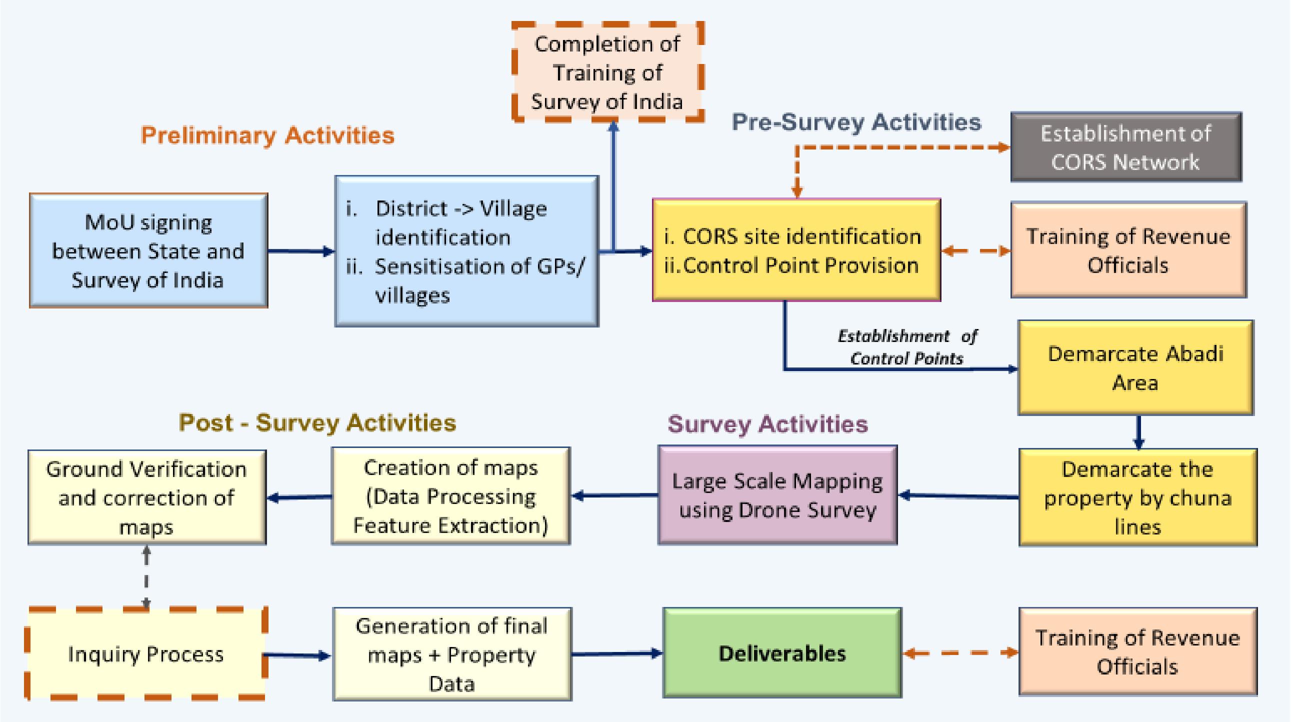
2.2. Coverage

All villages in the country which will be eventually covered in this scheme. The entire work is likely to be spread over a period of five years from April 2020 to March 2025.

Pilot Phase of the Scheme implemented in FY 2020-21 covered States of Haryana, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh and Uttarakhand, Punjab, Rajasthan and Andhra Pradesh and CORS network establishment in States of Haryana, Punjab, Rajasthan and Madhya Pradesh

2.3. Implementation Process Flow

The brief/ broad level implementation process flow of the scheme is illustrated below:


Completion of Training of Survey of India
Preliminary Activities
Pre-Survey Activities
Establishment of CORS Network
MoU signing between State and Survey of India
i. District -> Village identification
ii. Sensitisation of GPs/ villages
i. CORS site identification
ii.Control Point Provision
Training of Revenue Officials
Establishment of Control Points
Demarcate Abadi Area
Post - Survey Activities
Survey Activities
Ground Verification and correction of maps
Creation of maps (Data Processing Feature Extraction)
Large Scale Mapping using Drone Survey
Demarcate the property by chuna lines
Inquiry Process
Generation of final maps + Property Data
Deliverables
Training of Revenue Officials

Chapter- 3

COMPONENTS OF THE SCHEME

3.1. Brief outline of the components to be taken up under the Scheme:

S. No	Scheme Component	Brief Description*
1	Establishment of CORS network	Continuously Operating Reference Stations (CORS) is a network of reference stations that provide a virtual base station that allows access long-range high-accuracy Network RTK corrections. The CORS Network supports in establishing Ground Control Points, which is an important activity for accurate Geo-referencing, ground truthing and demarcation of Lands.
2	Large Scale Mapping (LSM) using Drone	Rural inhabited (abadi) area would be mapped by Survey of India using drone Survey. It would generate high resolution and accurate maps to confer ownership property rights. Based on these maps or data, property cards would be issued to the rural household owners.
3	IEC Activities	Awareness program to sensitize the rural population about the surveying methodology and its benefits
4	Enhancement of Spatial Planning Application “Gram Manchitra”	The digital spatial data/maps created under drone survey shall be leveraged for creation of spatial analytical tools to support preparation of GPDP.
5	Online Monitoring System	Online Monitoring and reporting dashboard would monitor the progress of activities.
6	Program Management Unit i. National Programme Management Unit (NPMU) ii. State Programme Management Unit (SPMU)	The scheme will be implemented through the regular departmental mechanisms, which will be assisted by Programme Management Units at the National and State level.
7	Documentation Support/ Workshops/ Exposure Visits	Organisation of National/ Regional level workshops and exposure visit

**Detailed description may be viewed in Section 3.2 below*

3.2. Scheme Components details

3.2.1. Establishment of Continuous Operating Reference System (CORS) Network

Continuously Operating Reference Stations is a network of reference stations that provide a virtual base station that allows access long-range high-accuracy Network RTK corrections. The RTK networks extend the use of RTK to a larger area containing a network of reference stations. Accuracy is increased in a CORS network, because more than one station helps ensure correct positioning and guards against a false initialization of a single base station. Real-time kinematic (RTK) positioning is a satellite navigation technique used to enhance the precision of position data derived from satellite-based positioning systems. The Survey of India shall perform the establishment of CORS Network, preparation of Geoid Model and ensure operation and maintenance of CORS network stations and provision of CORS network services for 5 years.

The main activities for Establishment of CORS network include:

i. Completion of the tendering process for outsourcing civil construction work, Installation and commissioning of CORS stations
ii. Site selection for CORS stations; handing over by State to survey of India
iii. Civil construction work by outsourced agency
iv. Installation and commissioning of CORS stations by outsourced agency
v. Establishment of Control Centre and Disaster Recovery (DR) by SoI
vi. Operation and Maintenance of CORS Network by SoI
vii. Training and Capacity building in CORS network-based uses or applications

Benefits of CORS Network

i. The CORS network supports in establishing Ground Control Points, which is an important activity for accurate Geo-referencing, ground truthing and demarcation of lands.
ii. Once the CORS network is established, it could be used by any State agency /Department viz Revenue Department, Gram Panchayat (GP), Public Works Department, Rural Development Department, Agriculture, Drainage & Canal, Education, Electricity, Water, Health etc. for the survey and implementing/using GIS based applications.
iii. This would facilitate use of CORS network for any survey related activities like road construction, Irrigation works and infrastructure works etc.
iv. CORS network established under pilot phase of the scheme will also cover the border areas of other neighbouring States. So, accurate Geo-reference could also be possible on these areas. Refer *Annexure II* for the status of CORS network.

3.2.2. Large Scale Mapping using Drone

Rural inhabited (Abadi) area would be mapped by Survey of India in collaboration with State Revenue Department and State Panchayati Raj Department to generate revenue maps to confer ownership property rights. Based on these maps or data, property cards would be issued to the rural household owners in Abadi area. The high resolution and accurate image base maps would facilitate creation of the most durable record of property holdings in areas with no legacy revenue records. The main activities include:

i. Acquisition of Images
    a. Procurement of Drone by SoI
    b. Permissions or Clearances for drone flying from DGCA, MoD, MHA etc

- c. Demarcation of Abadi area by issuing notices to the adjacent landholders.
- d. Ground marking of parcels/properties in area to be surveyed using white limestone powder or any other appropriate method (Chunna etc.)
- e. Mission planning for drone flying using available maps/satellite data based on boundary coordinates provided by State officials
- f. Provision of Control and Check points: -

  Establishment of Ground Control Points (GCPs) Horizontal and Vertical Control, the location, sketches, description and ids of all control points need to be maintained in GIS and co-ordinate list needs to be maintained in both system of latitude/longitude, and WGS-84 and UTM Coordinate System zone via CORS network
- g. Large scale mapping of rural inhabited area (abadi) using Drone or UAV (Unmanned Aerial Vehicle) would be carried out using Professional Survey Grade UAVs as these UAVs are RTK (Real Time Kinematic) / PPK (Post Point Kinematic) enabled and use high resolution RGB sensor on 1:500 scale with image capturing of better than 5 cm GSD ± 12.5 cm or better planimetry accuracy to provide accurate projection centre and orientation of the images captured during the flying
- h. Processing of data acquired through Drones, Data Processing Block Control and Adjustment -AT (Aerial Triangulation)/DEM (Digital Elevation Model) generation and DTM (Digital Terrain Model) processing and ortho-rectified images (ORI)

ii. Feature Extraction and Base Map Generation:

- a. ORI shall be used for extraction of all topographical features by SoI including property boundaries marked in ground jointly by Gram Panchayat and State Revenue Department i.e. village residents and Revenue department officers. State Revenue Department and State Panchayati Raj Department will provide requisite support to the Survey of India (SoI) feature extraction team in identification of features or assets viz. open plots, govt. owned land, Gram Sabha owned properties, individual properties.

   b. 2D/3D features extraction and demarcation of attributes as per requirement of State Revenue Department on the digital map
   c. Incorporation of attribute information and other secondary information in the GIS database which shall be OGC (Open Geospatial Consortium) compliant.
   d. Creation of DEM and generation of Land Parcel maps of 1:500 scale
   e. Numbering of properties/structures within Lal dora area as per the numbering system provided by the State Revenue Department.

iii. Ground validation of ORI and digital maps by SoI for accuracy.

iv. Ground-truthing and validation of Land Parcel maps collaboratively by Survey of India and State Revenue Department

v. Post validation and verification, creation of final LPM (Land Parcel Maps), village maps /digital GIS maps and GIS database

vi. Handing over of the final deliverables (Final maps and GIS database) to State Revenue Department and to the State Rural Development/Panchayat Raj Department. The deliverables shall include a working GIS database and application so that further updation of data and utilization of data is possible without incurring any licence charges later on.

vii. Handing over of village maps and digital GIS database to MoPR (through NIC-GIS division) on continuous basis.

viii. Issuance of Property cards by State Authorities/ Revenue Department.

ix. Training, Capacity building for hand holding to the officials of Revenue Department by SOI.

3.2.3. Information, Education, Communication (IEC) Initiatives

National level IEC campaign will be conducted to mobilize people to participate in the drone survey. It will include Campaign during National Panchayati Raj Day, Independence Day etc, Republic day, Statehood day. Documentation of good practices, dissemination of important message through various media.

The State government shall develop comprehensive communication strategy to undertake awareness programs to sensitize the local population about the surveying methodology and its benefits. For facilitating such awareness, communication materials can be developed in the form of manuals, flip books, poster, role plays, puppet shows, billboards, pamphlet distribution, public announcement in villages, permanent displays like Information walls, Citizen information counters on fixed days can also be considered. Other activities may include:

i. Showcasing good practices, short films on the survey and innovations by Panchayats
ii. Sensitization and Mobilisation of Gram Sabha
iii. Use of social Media, audio visual media, community radio, special programmes/features in television channels
iv. Cultural activities, exhibitions, mobile vans to disseminate information about survey and its benefits
v. A core group of officers and staff from the States/UTs may be sent on exposure visits to other States/UTs which have demonstrated considerable success in implementing the project.

3.2.4. Enhancement of Spatial Planning Application “Gram Manchitra”

A spatial planning application “Gram Manchitra” has been implemented by MoPR for leveraging GIS maps/ technology for the preparation of GPDP. As the drone survey progresses, the digital spatial data/maps created under drone survey shall be leveraged for creation of spatial analytical tools to support preparation of GPDP.

3.2.5. Online Monitoring System

Online Monitoring and reporting dashboard would be centrally hosted for real time monitoring of the SVAMITVA scheme. It will Monitor progress of activities under the scheme. State Project Management Unit will ensure submission of online monitoring reports.

3.2.6. Project Management

The scheme will be implemented through the regular departmental mechanisms, which will be assisted by Programme Management Units at the National and State level.

i. **National Programme Management Unit (NPMU)** will be set up at the National level for overall management, monitoring of various activities under Scheme and to provide support to States and Survey of India. The NPMU will have qualified and experienced experts from the relevant domain. MoPR may also hire short term consultants and/or will have flexibility to outsource (NPMU) to professional agencies. Refer Section 8.1.2 for the details of key activities of the NPMU.

ii. **State Programme Management Unit (SPMU)** will be set up at the State level for overall management, monitoring of various activities under Scheme and to provide support to State Revenue Department, District officials, GP functionaries and Survey of India. The SPMU will have qualified and experienced experts from the relevant domain. State Revenue Department may also hire short term consultants and/or will have flexibility to outsource (SPMU) to professional agencies. Refer Section 8.1.4 for the details of key activities of the SPMU.

3.2.7. Documentation Support/ Workshops/ Exposure Visits

The Ministry of Panchayati Raj shall implement this component either directly or through other Government Agency.

i. National/ Regional level workshops

ii. A core group of officers and staff from the States/UTs may be sent on exposure visits to other States/UTs and abroad where considerable success in implementing the project or similar activity has been achieved.

Chapter- 4

FINANCIAL OUTLAY AND FUNDING PATTERN

4.1. Year wise Financial outlay

#	SCHEME COMPONENTS	Rate (2021-2025)	2021- 2022		2022-2023		2023-2024		2024-2025	
			Nos.	Lakh Rs	Nos.	Lakh Rs	Nos.	Lakh Rs	Nos.	Lakh Rs
1	Establishment of CORS Network	Rs 24 lakhs per CORS	357 stns.	8568.00	0	0	0	0	0	0
2	Large Scale Mapping of villages using Drones	Rs.6000 per village	192001 villages	11,520	204263 Villages	12256	104218 villages	6253	42612 villages	2557
3	IEC Activities	Rs. 500 per village	960		1021.3		521.09		213.06	
4										
4.1	National Programme Management Unit (Senior+ Junior Resources)	Refer Section 12.3	5+5	281.69	5+4	274.11	5+3	266.54	5+2	258.96
	Capacity Building & Travel Expenses		As Required	20.00	As Required	20.00	As Required	20.00	As Required	10.00
4.2	State Programme Management Unit resources	Rs 65000 per month	52	405.60	44	343.20	26	202.80	15	117
5										
5.1	Spatial Planning "Gram Manchitra"		150.00		150.00		150.00		150.00	
5.2	Online Monitoring System									
5.3	Central Infrastructure - Hardware & Software		1100.00		850.00		100.00		0	
6	Documentation/ Workshops and exposure visits		100.00		100.00		100.00		50.00	
			23105.35		**15014.41**		**7613.51**		**3355.74**	

4.2. Scheme Component wise Funding Pattern

#	Scheme Components	Fund Recipient	Instalments	Requirements
1	**Establishment of CORS network**	Survey of India	1st (50 % of Total Estimated cost for CORS Establishment earmarked for the respective State)	Based on the MoU signed between SoI and the respective States
			2nd (Remaining 50 % of Total Estimated cost for CORS Establishment earmarked for the respective State)	Based on submission of utilisation certificate of 60% of first instalment
2	**Large Scale Mapping (LSM) using Drone**	Survey of India	1st (50 % of total estimated cost for Large Scale mapping earmarked to the respective State)	Annual Proposal submitted by Survey of India
			2nd (50 % of total estimated cost for Large Scale mapping earmarked to the respective State)	Based on submission of utilisation certificate of 60% of first instalment
3	**IEC Activities**	State Revenue Department	1st (50 % of Total Estimated cost earmarked to respective States for conducting IEC activities)	Grants-in-aid on submission of demands/ estimates/ project proposals
			2nd (Remaining 50 % of Total Estimated cost earmarked to respective States for conducting IEC activities)	Based on submission of utilisation certificate of 60% of first instalment
4	**Programme Management Unit**			
4.1	National Programme Management Unit (NPMU)	NIC through NICSI	1st (50 % for total cost estimated for NPMU)	Annual proposal submitted by NIC (Action Plan) and tripartite MoU signed among NIC, NICSI and MoPR
			2nd (Remaining 50 % for total cost estimated for NPMU)	Based on submission of utilisation certificate of 60% of first instalment
4.2	State Programme Management Unit (SPMU)	State Revenue Department	1st (50 % of Total Estimated cost earmarked to respective States for State Programme Management Unit)	Grants-in-aid on submission of demands/ estimates/project proposals

			2nd (Remaining 50 % of Total Estimated cost earmarked to respective States for State Programme Management Unit)	Based on submission of utilisation certificate of 60% of first instalment
5.1	**Enhancement of Spatial Planning Application "Gram Manchitra"**	NIC through NICSI	**1st** (50 % of Total Estimated cost for Enhancement in Spatial Application and online Dashboard)	Annual proposal submitted by NIC (Action Plan) and tripartite MoU signed among NIC, NICSI and MoPR
5.2	**Online Monitoring System**		**2nd** (Remaining 50 % of Total Estimated cost for Enhancement in Spatial Application and online Dashboard)	Based on submission of physical progress certifying utilisation certificate/ expenditure statement of 60% of 1st instalment
5.3	**Central Infrastructure - Hardware & Software**			
6	**Documentation/ Workshops and exposure visits**	State /any Government Agency *(under Grant in aid)*	As per actuals	Submission of expenditure statement by the State/ Government agency organising such workshop

4.3. Parameters for funds disbursements

i. All transactions related to the release and tracking of SVAMITVA Scheme funds will be done only through PFMS. All releases would be in accordance with the provisions of the GFR, 2017.

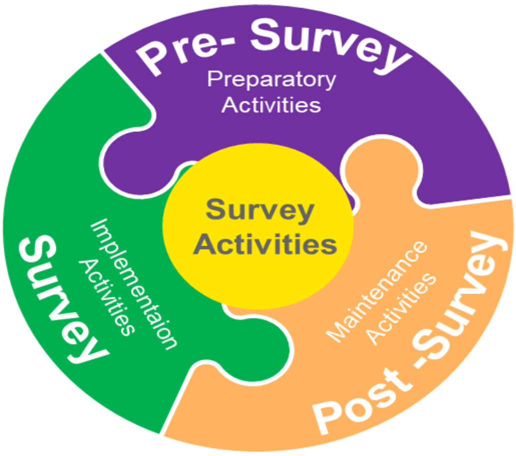
ii. Secretary, Ministry of Panchayati Raj is empowered to approve or modify detailed guidelines for various aspects of the Scheme, including any inter se adjustments within the norms and Scheme Components and allocation of villages to States for Large Scale Mapping using drones depending upon progress in the States/UTs

Chapter- 5

SURVEY APPROACH

5.1. Survey Methodology

Drone or UAV (Unmanned Aerial Vehicle) based large scale mapping is carried out using Professional Survey Grade UAVs as these UAVs are RTK (real Time Kinematic) / PPK (Post point kinematic) enabled and use high resolution RGB sensor to provide accurate projection centre and orientation of the images captured during the flying. Terrain tracing functionality in such UAV platform ensures the consistency in the image quality and geometric accuracy. Drone based high resolution or large-scale mapping on 1:500/1000 scale requires precise spatial reference frame of the entire state to ensure the spatial data integration, matching and seamlessness with other datasets created using the common reference frame. The subsequent sub-sections detail the various activities under the difference stages involved in the complete process of Drone based survey of Rural in-habitations.



5.1.1. *Pre-Survey Activities*

i. Establishment of CORS network

ii. The regional revenue office takes permission from the Collector’s office to conduct the survey. The Collector notifies the survey area through a public notice.

iii. The Panchayati Raj Department invites the residents of the village for Gram Sabha to inform them about the schedule of the survey and to sensitize about the surveying methodology and its benefits.

iv. Identification of individual properties, Government assets, Gram Sabha land parcels, roads, open plots etc. and Ground marking of property areas to be surveyed.

v. SoI takes requisite permission for flying Drones from Directorate General of Civil Aviation/ Ministry of Defence
vi. Mission planning for drone flying using available maps/satellite imagery

5.1.2. Survey Activities

i. The regional revenue office would provide scanned maps to SoI
ii. SoI should provision for Ground Control Points or Check points before flying.
iii. Acquisition of Aerial images using Professional Survey Grade Unmanned Aerial Vehicle/ Drone for Large Scale Mapping of rural abadi area, inhabited areas contiguous to Abadi and wadis/basties in rural areas.
iv. The images captured through Drone would be processed by Survey of India in its Geographic Information System lab.
v. Data Processing: Basemap Generation and 2D Feature Extraction
    a. Generation of DEM & Ortho Rectified Images
    b. Extraction of 2D topographical features from Ortho-rectified images
    c. Generation of Land Parcel maps at a scale of 1:500
    d. Linking of Attributes with extracted topographical features
    e. Creation of boundaries of villages
    f. Numbering of properties/structures within village abadi area /Lal dora area as per the numbering system provided by State Government
vi. Creation of GIS database
vii. Ground validation of the processed images for better than 10 cm accuracy.

5.1.3. Post -Survey Activities

i. Legal Notification for joint verification of ownership by State Revenue Department and Gram Panchayat.
ii. Inquiry Process for Ownership adjudication: The process is initiated, where survey officials verify ownership of the land parcels, with the help of gram sabha, land owners, and review the existing documents
iii. Issue of notification for providing adjudication of final results. The Enquiry

Officer (from the Survey Department) re-verifies the ownership and resolves any post survey objections received from property owners. These may be related to correction in owner name, property boundaries, joint holding etc. For unresolved objections / disputes, the final decision shall rest with the District Magistrate / Collector/ or State may indicate a resolution mechanism.

iv. After Ground truthing, inquiry process and dispute resolution, final Digital maps/ LPM /DEM/ GIS datasets would be generated and handed over to MoPR/Authorised agency as per the standard procedure for use.

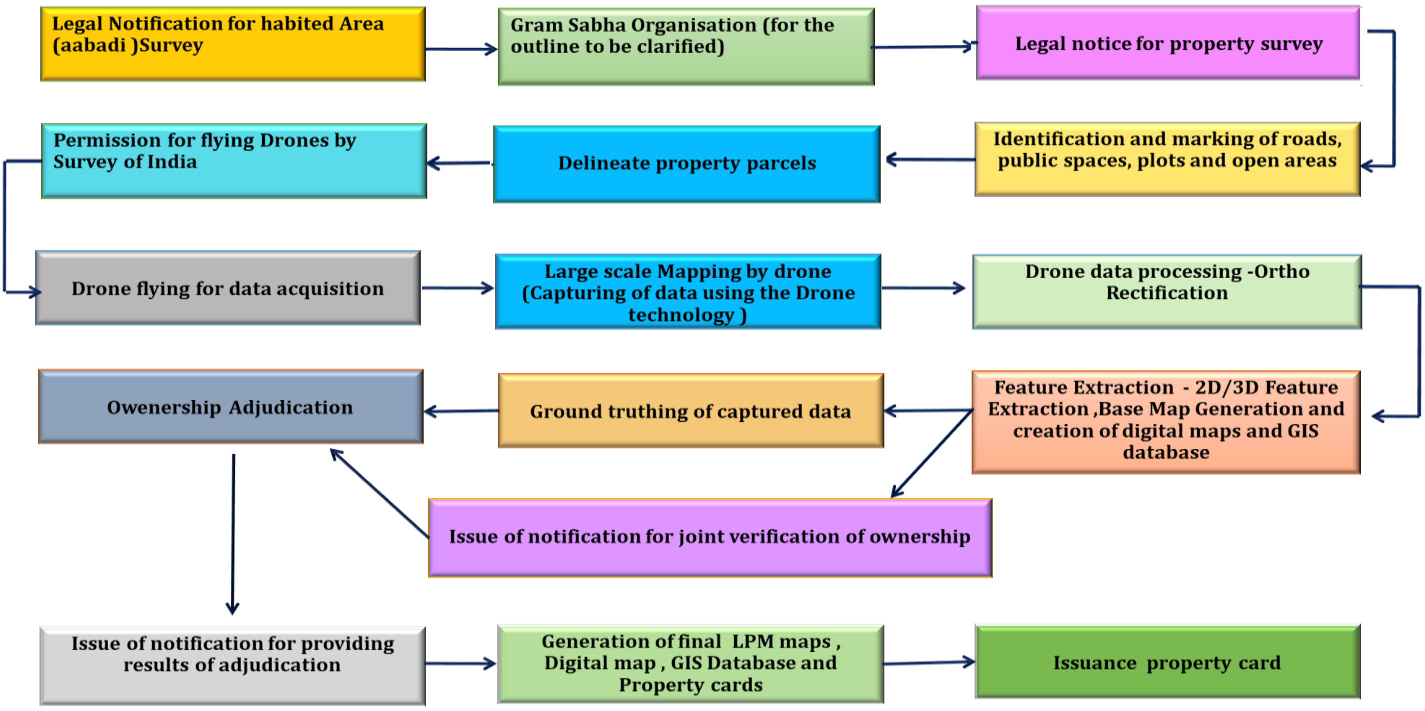
v. Printing and distribution of property cards to village household owners (legal document of property ownership).

vi. Provisions should be made for the proper storage and regular update of records,

vii. Gram Panchayat shall update the property tax and asset register of GP, wherever applicable.

viii. State Revenue shall perform and responsible for regular updation of maps.

ix. SoI shall provide training and Capacity building of Revenue Department Government Officials


Legal Notification for habited Area (aabadi)Survey
Gram Sabha Organisation (for the outline to be clarified)
Legal notice for property survey
Identification and marking of roads, public spaces, plots and open areas
Delineate property parcels
Permission for flying Drones by Survey of India
Drone flying for data acquisition
Large scale Mapping by drone (Capturing of data using the Drone technology)
Drone data processing -Ortho Rectification
Feature Extraction - 2D/3D Feature Extraction ,Base Map Generation and creation of digital maps and GIS database
Ground truthing of captured data
Owenership Adjudication
Issue of notification for joint verification of ownership
Issue of notification for providing results of adjudication
Generation of final LPM maps , Digital map , GIS Database and Property cards
Issuance property card

Chapter- 6

STAKEHOLDERS – ROLE & RESPONSIBILITY

Roles and Responsibilities of different Stakeholders are illustrated as below

6.1. Ministry of Panchayati Raj

Funding and monitoring of the scheme at the Central level. Monitoring mechanism is illustrated in section 8.1 below

The funding shall be provided to the following stakeholders

i. Survey of India for Establishment of CORS network

ii. Survey of India for large scale mapping using drone

iii. State Revenue Department for State Project Management and IEC Activities

iv. NIC for Spatial analytical tools - NIC- Panchayat Informatic Centre shall consume the digital spatial data/maps created under drone survey for creation of spatial analytical tools and enhance Gram Manchitra application to support preparation of GPDP

v. NIC for Development and Maintenance of Monitoring Dashboard – NIC would develop and centrally host the application to report and monitor the progress of the scheme

vi. State/any Government agency for organising National/ Regional workshops and exposure visits

6.2. Survey of India

i. The part of the Project pertaining to processing of images etc. to be implemented by Survey of India shall be executed on its premises under its close supervision. Workspace to the 3rd party or modernisation of available space in terms of computers/peripherals/servers/data centre shall be provided or looked after by the Survey of India.

ii. For outsourcing of any activity under the project, SoI will be responsible for preparation of RFPs/Bids, Processing of bids, Award of work, Supervision, Quality check and Work execution as per contract agreement as well as the norms laid down by Government of India.

iii. SoI shall be responsible for survey planning, execution and monitoring of survey activities and shall adhere with the norms as laid by Government of India

iv. All clearances for drone flying, data vetting and final classification will be taken by SoI

v. Establishment of CORS (Continuously Operating Reference Stations) along with their operation and maintenance for five years.

vi. All Continuously Operating Reference Stations shall be connected with high precision/precision levelling based on Survey of India Benchmarks

vii. Acquisition of Aerial images using Professional Survey Grade Unmanned Aerial Vehicle/ Drone for Large Scale Mapping of rural Abadi area of state.

viii. Post processing of Unmanned Aerial Vehicle images shall be carried out by Survey of India (SoI) in Geographic Information System lab at SoI regional centre. The SoI shall use their hardware, software and it's GIS Lab for data processing

ix. Data processing and Feature extraction: Ortho Rectified Images, and extraction of topographical features. Please refer section 3.2.2.ii point above for details.

x. Attribute entry and linking: The attributes collected/provided by State Government shall be linked with their respective features, thereby creating a digital spatial library of all the features and their respective information. The data entry in the attributes table shall be carried out by Survey of India in coordination with SPMU.

xi. Numbering of the properties / structures within rural inhabited (Abadi)/Laldora/area as per numbering system provided by the State government.

xii. Ground-Truthing and validation of topographical features as derived from ortho- rectified images

xiii. Generation of updated Land Parcel Maps (LPM) in suitable soft copy shape (.shp) file formats, in printing formats and other Geographic Information System compatible formats which shall be linked with Compatible software. The Land Parcel Maps product shall comprise of base map overlain by different layers of topographical features, man-made structures, land parcel information, district/tehsil/village boundaries information, etc. along with alike attributes as per the requirement of Revenue department.

xiv. To implement Open Geospatial Consortium (OGC) compliant Geographic Information System database models for generation of Geographic Information System layer data structure for storing spatial and attributable data

xv. Handing over of the final deliverables to Ministry of Panchayati Raj/State authorities.

xvi. Training and Capacity building of nominated personnel at State Revenue Department on the operations and usage of various applications, technologies, which are to be used in the project.

6.3. State Revenue Department

i. State will carry out appropriate amendment to the Land Revenue Code and/or any other administrative document to grant the format of the Property Card due authority and validity

ii. The State Revenue Department need to check the extent of activities that can be undertaken to conduct Drone survey for demarcation of rural inhabited areas in the State Revenue Act. *If required*, State may need to seek an amendment in the State Revenue Act to undertake drone and physical survey of properties. A brief on some amendments made by the State in the Pilot Phase is at ***Annexure X***.

iii. Facilitation of field survey activities with support from local authorities for CORS site selection and establishment work and physical security of equipment and to field teams, hiring of field vehicles, hiring of local labours, accommodation for field teams etc.

iv. Each Drone/ Unmanned Aerial Vehicle flying team shall be accompanied by at least one employee from Revenue Department, Gram Panchayat and, if necessary, one official from Police Department.

v. Marking of property boundaries with Chunna lines with owners and Gram Panchayat before the drone flying in the area

vi. To facilitate feature extraction as per State requirements to SoI team

vii. Provide Attribute information for entry and linking: A standardized data collection format shall be provided as an effort to simplify and speed up the process. The correctness of attribute data shall be the responsibility of State Government.

viii. Ground activities for checking and validation of ORI data: Ground-Truthing and validation of Land Parcel maps and layers pertaining to feature list shall be carried out by State Government

ix. Responsible for (a) checking the accuracy of feature data/layer and (b) ensuring correctness of attributes data as supplied to Survey of India

x. Issue of notification for providing adjudication of final results. The Inquiry Officer (from the Survey Department) re-verifies the ownership and resolves any post survey objections received from property owners. These may be related to correction in owner name, property boundaries, joint holding etc. For unresolved objections / disputes, the final decision shall be taken as per the State Acts/Rules.

xi. Finalization of revenue maps and subsequent actions

xii. Co-ordinate with SoI for the training to officials/ functionaries for Issuance of Property Card to villagers.

xiii. Issuance of Property card to villagers.

xiv. State Governments would manage and maintain the data generated under the scheme viz.

   a. Property data / maps, LMP maps and digital data created would be maintained by State Revenue Department.
   b. Hard copies of the Maps created after Survey shall be kept at
      1. Gram Panchayats
      2. Tehsil/Taluka Record Centre
      3. District Record Centres
      4. State Record Centre
   c. Data Centre Infrastructure available and funded under Digital India Land Records Modernization Programme (DILRMP) scheme of Department of Land Records, Ministry of Rural Development may be utilised for hosting and storing the data created under the scheme

xv. Seamless integration of Bhu-Naksha/ related Software with SVAMITVA maps.

6.4. State Panchayati Raj Department

i. Organising the Gram Sabha to intimate the schedule of the survey and post survey validation of maps

ii. Providing support to sensitize the villagers about the project work and its intended benefits leveraging RGSA funds for IEC etc.

iii. Preparing and updating the Property (Tax) Register through GPs.

6.5. Gram Panchayat

i. Aid the Panchayati Raj Department and State Revenue Department in the timely completion of the survey

ii. Generate Awareness among the residents of the village about the survey

iii. Digitize existing GP property (Tax) Registers, wherever applicable, and make available to SoI and Enquiry Officer for preparing interim map/Records.

iv. Coordination for ground level activities for conducting survey

v. Update property tax and asset register of GP, *wherever applicable*

vi. Help in the resolution of the post survey objections received from property owners. These may be related to correction in owner name, property boundaries, joint holding etc. For unresolved objections / disputes, the final decision shall rest with the State Authorities/ Judicial System.

vii. Make use of the created maps for GPDP formulation.

6.6. Property Owner

i. Cooperate with concerned authorities during the process of measurement and survey

ii. Producing necessary documents (if available) for the survey by the concerned authority.

6.7. NIC- GIS

i. Enhance the Ministry’s Spatial Planning Application “Gram Manchitra” by leveraging digital spatial data/maps created under drone survey for creation of spatial analytical tools to support preparation of Gram Panchayat Development Plan (GPDP).

ii. Development and maintenance of centrally hosted online monitoring and reporting Dashboard of the Scheme.

iii. Store (*if required*) and host the DEM and GIS database created under SVAMITVA Scheme for integration in Gram Manchitra Application

6.8. State Department of Land Records

i. To enable use of the Data Centre Infrastructure available at different levels (State/ District/Tehsil) and funded under Digital India Land Records Modernization Programme (DILRMP) scheme of Department of Land Records, Ministry of Rural Development for hosting and storing the digital data created under the scheme.

ii. Facilitate seamless integration of Bhu-Naksha with SVAMITVA maps.

6.9. Joint Responsibility (State and Survey of India)

i. A Memorandum of Understanding (MoU) would be signed between Survey of India and State Government for execution of this project. The States which have an existing MoU with Survey of India, wherein the mutual obligations are largely similar need not sign the new MoU.

ii. Part of activities, relating to Ground Control Points have to be completed by the State Government and Survey of India (also having its own Ground Control Point library). If required, densification shall be done using Ground Control Point library from both departments by Survey of India.

iii. Reconciliation of the survey data with the available records and finalizing the dimensions of each land parcel.

Chapter- 7

ACTIVITIES MAPPING

The following provides the list of activities envisaged for the implementation of the scheme and the corresponding Stakeholders

7.1. List of Activities/ Deliverables- Stakeholders Mapping

T0 is the day of the launch of the Scheme.

S.No	Activities	Responsibility	Remarks (if any)
1	Roll Out SVAMITVA Scheme	**Ministry of Panchayati Raj**	
2	Establishment of Monitoring & Evaluation Framework		
2.1	National Level I. National Steering Committee II. National Programme Management Unit III. Monitoring & Reporting Dashboard	**Ministry of Panchayati Raj**	
2.2	State Level I. State Steering Committee II. State Programme Management Unit District Level I. District Monitoring and Review Committee Gram Panchayat Level I. Panchayat-level Monitoring Committee	**State Revenue Department**	
2.3	Enhancement / On boarding of States/UTS on centrally hosted	**NIC-GIS**	

S.No	Activities	Responsibility	Remarks (if any)
	Online Monitoring and Reporting Dashboard		
3.	Signing of MoU between State Government and Survey of India	**State Revenue Department** **Survey of India**	Few States have already signed MoUs
4	Identify and prepare cluster of Village for Mission Mode Drone Survey	**State Revenue Department** **Survey of India**	
5	Establishment of CORS network		*Parallel activities with Large Scale Mapping using Drones. In States for which CORS network already established/ or not required. They Can start with Drone Survey*
5.1	Tendering for outsourcing CORS network construction and installation	**Survey of India**	
5.2	Site selection and recce for CORS stations: SOI selects the suitable site with the help of State Government. The State Revenue Department would facilitate required permission from owner for creation or establishment of CORS network with physical security of stations.	**State Revenue Department** **Survey of India**	

S.No	Activities	Responsibility	Remarks (if any)
5.3	Facilitation of field survey activities with support from local authorities for safety/security of field teams & equipment, hiring of field vehicles, hiring of local labours, accommodation for field teams etc.	**State Revenue Department**	
5.4	Construction, installation and Commissioning of CORS station by outsourced agency	**Survey of India**	*To be outsourced by SoI through tendering process*
5.5	Establishment of Control Centres.	**Survey of India**	
5.6	Operation and Maintenance of CORS Network	**Survey of India**	
6	Training and Capacity building to nominated officials at State on survey methodology and tools	**Survey of India**	
7	Large Scale Mapping Using Drone		
7.1	Procurement of Drone/ Drone Services	**Survey of India**	*Cost covered in Drone flying and data acquisition*
7.2	Pre- Survey Activities		
7.2.1	Obtaining Permissions or Clearances for drone flying from DGCA, MoD, MHA etc	**Survey of India**	
7.2.2	Scanning the available rural habited maps and providing to Survey of India	**State Revenue Department**	
7.2.3	Legal Notification of Abadi area survey	**State Revenue Department**	
7.2.4	Organise the Gram Sabha to intimate the schedule of the survey	**State Panchayati Raj Department**	

S.No	Activities	Responsibility	Remarks (if any)
7.2.5	Provide support to sensitize the villagers about the project work and its intended benefits leveraging RGSA funds	**State Panchayati Raj Department**	
7.2.6	Marking of property boundaries with Chunna lines with owners before the drone flying in the area	**State Revenue Department** **Gram Panchayat**	
7.2.7	Mission planning for drone flying using available maps/satellite imagery data	**Survey of India**	
7.3	Survey Activities		
7.3.1	Provisioning of Ground Control Points for flying	**Survey of India**	
7.3.2	Acquisition of Aerial images using Professional Survey Grade Unmanned Aerial Vehicle/ Drone for Large Scale Mapping	**Survey of India**	
7.3.3	Drone data processing and Feature extraction: Ortho Rectified Images, and extraction of topographical features	**Survey of India**	*Data is processed in Geographic Information System lab at SoI regional centre. The SoI shall use their hardware and software and their GIS Lab for data Processing*
7.3.4	Attribute entry and linking: The attributes collected/ provided (by State Government) shall be linked with their respective features,	**State Revenue Department** **Survey of India**	

S.No	Activities	Responsibility	Remarks (if any)
	thereby creating a digital spatial library of all the features and their respective information. The data entry in the attributes table shall be carried out by Survey of India in coordination with SPMU.		
7.3.5	Numbering of properties / structures within rural inhabited (abadi)/Lal dora/area as per numbering system provided by the State government.	**State Revenue Department** **Survey of India**	
7.3.6	Ground-Truthing and validation of topographical features as derived from ortho- rectified images	**Survey of India** **Gram Panchayats**	
7.3.7	Ground-Truthing, validation of Land Parcel maps	**State Revenue Department** **Survey of India**	
7.4	Post – Survey Activities		
7.4.1	Issue of notification of Joint verification of ownership	**State Revenue Department**	
7.4.2	Property ownership Adjudication	**State Revenue Department**	
7.4.3	Issue of notification for providing results of adjudication	**State Revenue Department**	
7.4.4	Inquiry Officer with the help of Gram Panchayat Resolve post	**State Revenue Department**	

S.No	Activities	Responsibility	Remarks (if any)
	survey objections received from property owners. These may be related to correction in owner name, property boundaries, joint holding etc. For unresolved objections / disputes, the final decision shall rest with the District Magistrate / Collector	**Gram Panchayat**	
7.4.5	Post Objection - Finalisation/ correction and validation of maps	**State Revenue Department** **Survey of India**	
8	Final Deliverables	**Survey of India**	
8.1	Ortho-Rectified Image (ORI) of better than ± 5 cm GSD	**Survey of India**	***Data Owner**: Jointly owned by: Survey of India, Ministry of Panchayati Raj, State Revenue Department* ***Data Storage**: Stored at Data Centre Infrastructure available and funded under Digital India Land Records Modernization Programme (DILRMP) scheme of Department of Land Records, Ministry of Rural*

S.No	Activities	Responsibility	Remarks (if any)
			Development
8.2	GIS data base prepared on 1:500 scale on UTM projection and WGS-84 datum	**Survey of India**	***Data Owner**:* *Jointly owned by:* *Survey of India,* *Ministry of Panchayati Raj,* *State Revenue Department* ***Data Storage**:* *SoI servers /data centre*
8.3	DEM/DSM of better than ± 20 cm accuracy	**Survey of India**	***Data Owner**:* *Jointly owned by:* *Survey of India,* *Ministry of Panchayati Raj,* *State Revenue Department* ***Data Storage**:* *SoI servers / data centre*
8.4	Property Card data (Record of Rights)	**Survey of India**	***Data Owner**:* *State Revenue Department* ***Date Storage**:* *NDC/ Cloud*
8.5	Hard copy maps on 1:500 scale (04 No's each) for a village on good quality 90 GSM paper along-with pdf copy	**Survey of India**	***Data Owner**:* *State Revenue Department* ***Stored at**:* *i. Gram Panchayats* *ii. Tehsil Record Centre* *iii. District Record*

S.No	Activities	Responsibility	Remarks (if any)
			Centres *iv. State Record Centre*
9	Enhancement in “Gram Manchitra” Application – Development of Analytic tools leveraging GIS database prepared	**NIC-GIS**	
10	Updation of property tax and asset register of Gram Panchayat	**Gram Panchayat**	
11	Issuance of property cards to Property Owner	**State Revenue Department**	
12	Training and Capacity building to nominated officials at State Revenue Department	**Survey of India**	
13	Regular updation of maps.	**State Revenue Department**	

Chapter- 8

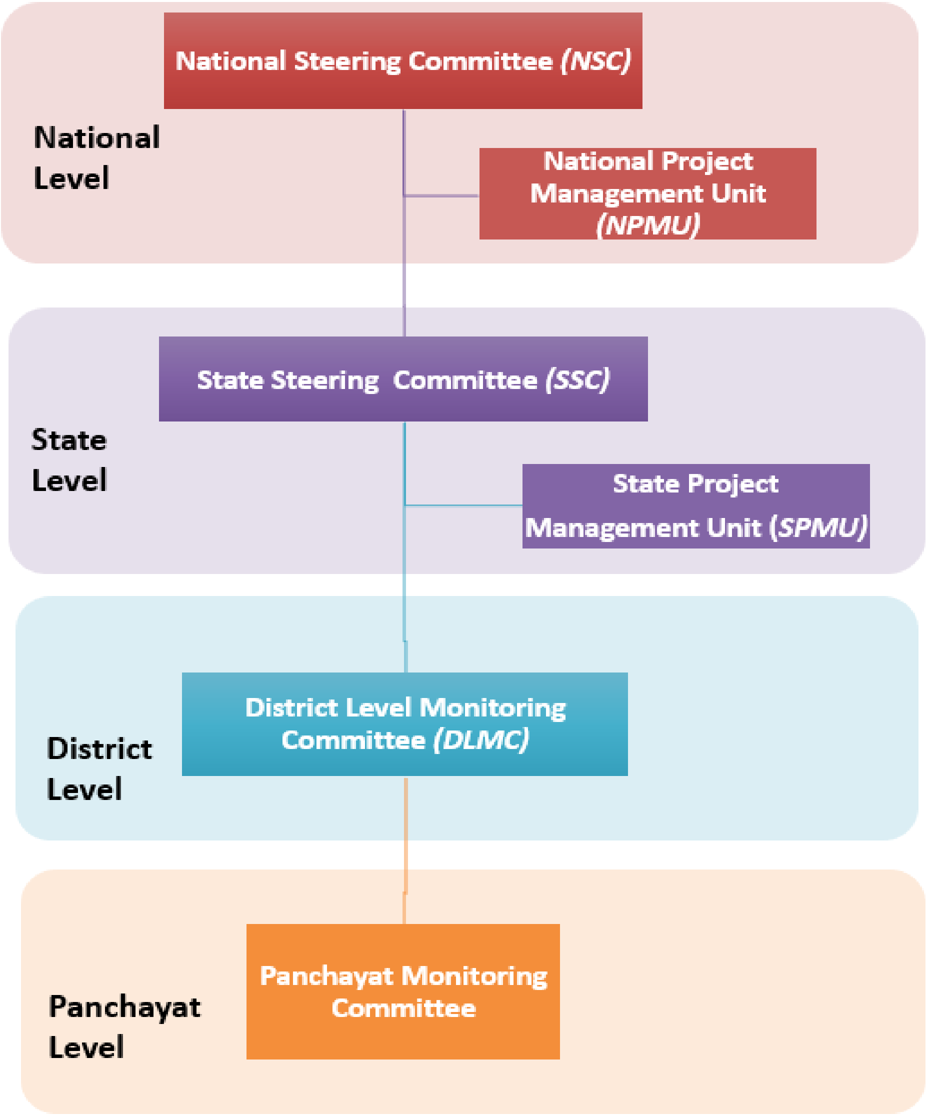
MONITORING AND EVALUATION

A four-layer monitoring and evaluation framework shall be put in place for timely monitoring, reporting and course corrections (wherever necessary).

It shall operate at National level, State level, District level and Panchayat level and shall comprise of relevant decision makers and subject matter experts.

8.1. Institutional Mechanisms for Implementation, Monitoring and Management

The following four-layer Institutional Mechanisms are envisaged


National Steering Committee (NSC)
National Level
National Project Management Unit (NPMU)
State Steering Committee (SSC)
State Level
State Project Management Unit (SPMU)
District Level Monitoring Committee (DLMC)
District Level
Panchayat Monitoring Committee
Panchayat Level

8.1.1. National Steering Committee (NSC)

National Steering Committee (NSC) will be responsible for the overall program oversight, monitoring and guidance for the smooth operation of the scheme. The Committee would review progress, initiate suitable advisory/instructions to the States and SoI and guide delivery of Scheme outcomes.

The NSC will be responsible for the following functions:

i. Provide strategic direction and guidance to the engagement.
ii. Decide on policy level issues that need to be addressed from time to time
iii. Streamline acquisition of Scheme outcomes

The Committee would meet at least once every quarter to monitor the scheme.

Secretary, Ministry of Panchayati Raj	**Chairman**
Representatives of NITI Aayog, not below the level of Joint Secretary	Member
Financial Advisor, Ministry of Panchayati Raj	Member
Representative of Survey of India, not below the level of Director	Member
Principal Secretary/ Secretary (Panchayati Raj Department)	Member
Principal Secretary/ Secretary (Revenue Department ()	Member
Representative of Secretary, Department of Rural Development	Member
Representative of the Secretary, Department of Land Resources	Member
Representative of National Remote Sensing Agency	Member
Representative of NIC-GIS	Member
Representative from Ministry of Civil Aviation	Member
Non-official person having experience in domain	Member
Joint Secretary handling SVAMITVA Scheme, Ministry of Panchayati Raj	Member Secretary

8.1.2. National Programme Management Unit (NPMU)

NPMU will be set up at the National level for overall management, monitoring of various activities under Scheme and to provide professional and technical support to States and Survey of India.

It shall work under the supervision of Member-Secretary of the NSC i.e. JS responsible for the Scheme and shall report to him/her.

It will have qualified and experienced experts from relevant/GIS disciplines. MoPR may also hire short term consultants and/or will have the flexibility to outsource (NPMU) to professional agencies including NICSI. *Term of Reference for the NPMU Consultant is enclosed at* ***Annexure IV***.

Key National level activities will include:

i. Overall implementation and stakeholder coordination including facilitating awareness and handholding support

ii. Assistance to States and Survey of India viz. supporting with signing of MoUs, fund disbursement to States, monitoring of project timelines etc.

iii. Collaboration with Survey of India and States to monitor the establishment of CORS network and large-scale mapping using Drone.

iv. Provide functional inputs towards development and maintenance of online monitoring and reporting Dashboard of the Scheme

v. Evaluation of the effectiveness of the scheme through verification and validating of project progress

vi. Cross State sharing and learning, documentation of good practices

vii. Co-ordinate the IEC activities at the national level to mobilize people to participate in drone survey. It will include running Campaign during National Panchayati Raj Day/week, dissemination of good practices and other national campaigns through various mediums including social media

viii. Coordination with NIC-GIS division and NRSC Bhuvan for leveraging digital spatial data/maps created under drone survey to develop spatial analytical tools to support preparation of GPDP in Gram Manchitra application among other applications.

8.1.3. State Steering Committee (SSC)

The SSC shall be responsible for overall program oversight and monitoring and shall provide guidance for the smooth operation of the scheme in the respective state.

The SSC will be responsible for the following functions:

i. Provide operational guidance on the project
ii. Participate in all meetings and periodically review the progress of the project.

The Committee would meet at least once every month to monitor progress and approve dashboard updating by the SPMU personnel.

ACS (Revenue) / Panchayati Raj	Chairperson
Divisional Commissioners	Member
Inspector General of Registration	Member
Commissioner/Director of Survey and Settlement and of Land Records	Member
Representative from State Panchayati Raj Department, not below the rank of Director	Member
Representative from Survey of India	Member
State Informatics Officer, NIC	Member
officer appointed by the Chairperson	Member Secretary

**State may co-opt additional four members from the State Government*

8.1.4. State Programme Management Unit (SPMU)

State Programme Management Unit (SPMU) will be set up at the State level for overall management, monitoring of various activities under Scheme and to support State Revenue Department, District officials, GP functionaries and Survey of India.

It shall work under the supervision of Member-Secretary of the SSC and shall report to him.

It will have qualified and experienced experts from relevant/GIS disciplines. State Revenue Department may also hire short term consultants and/or will have flexibility to outsource (SPMU) to professional agencies. Tentative *Terms of Reference for the Consultants is placed at* ***Annexure IV****.*

Key State level activities will include:

i. Responsible for managing the day to day programme management activities.
ii. Keep track of project progress and keep the senior management and other important stakeholders informed about the project progress.
iii. Providing handholding support to concerned stakeholders such as State departments and Survey of India.
iv. Support State Revenue department in reporting and monitoring the progress of Large-Scale mapping using Drones
v. Consolidate the attribute information and other secondary information to be incorporated in the GIS database
vi. Support the ground-truthing of maps
vii. Facilitate signing of MoU between State and Survey of India and monitor the implementation timelines
viii. Facilitate Project progress reporting through regular updates in the Monitoring Dashboard of Scheme

8.1.5. District Monitoring and Review Committee (DMRC)

At the district level, the Committee will review the progress of implementation of the Programme at least once a month, and the District Collector/Deputy Commissioner shall submit report to the State Steering Committee. Also, the committee would be responsible for monitoring and oversight of the IEC funds granted.

District Collector / Deputy Commissioner / District Magistrate	Chairman
ADM and SDMs dealing with land revenue matters	Member
CEO/Executive Officer of the Zilla Parishad	Member
Sub-district Registrar	Member
Survey and Settlement/ Consolidation Officer having jurisdiction over the district	Member Secretary
District Panchayati Raj Officer	Member
District Informatics Officer NIC	Member
Representative from Survey of India	Special invitees

8.1.6. Panchayat Monitoring Committee (PMC)

At Panchayat level, the committee would oversee the implementation of the activities of survey in their panchayat

Sarpanch	Chairman
Ward Member	Member
Panchayat Secretary	Member
Patwari/ Talathi/ Lekhpal	Member - Convener

8.1.7. Third Party assessment of the Scheme

Assessment would be undertaken at appropriate instance during the course of the Scheme implementation

8.2. Online Monitoring Dashboard

The progress of the SVAMITVA Scheme would be regularly tracked through the online dashboard developed for this purpose.

Component	Key Performance Indicator (Outcome Measurement) *
Establishment of CORS Network	i) No. of CORS network established, installed and Commissioned ii) No. of CORS network functional

	iii) Training and Capacity building on CORS network-based uses or applications completed in States/UTs
Large Scale Mapping (LSM) using Drone	i) Completion status of establishment of Ground Control Points
	ii) No. of villages completed drone flying
	iii) No. of villages completed data processing and maps generated
	iv) No. of villages ground-truthing of maps completed
	v) No. of Villages with Spatial and non-spatial data dictionary with feature codes, feature type (line, points and polygon), Feature description and symbols created.
	vi) No. of villages for which DEM of ≤ 20 cm vertical accuracy for the village habited area created.
	vii) No. of villages for which the interim maps have been generated
	viii) No. of villages where Inquiry process is in process
	ix) No. of villages for which final maps have been generated
	x) No. of villages for which GIS database has been prepared
	xi) No. of villages for which Property cards have been prepared and distributed
	xii) Training and capacity building of Government officials completed by Survey of India
Programme Management	i) Programme Management Units which are functional and providing support for implementation of Scheme
IEC Activities	i) Intensive IEC conducted through various mediums ii) No. Gram Sabha sensitized and mobilised iii) No. of good practices documented and disseminated iv) No. of short films made and disseminated
Spatial Application	i) No. of villages for which GIS data has been created and shared with NIC team by SoI ii) No. of Villages for which GIS data integrated with Spatial Application iii) DEM alleviation profile created

**Indicative List*

Chapter- 9

DELIVERABLES

9.1. List of Deliverables

An indicative list of deliverables envisaged over the entire course of the project is given below:

i. CORS Network RTK service of ≤ 5 cm horizontal accuracy for five (05) years.

ii. Accurate geo-referenced digital maps using established control survey network based on National Spatial reference framework of the country.

iii. Geodetic network with co-ordinates and sketches of the control points showing their description and location. GCP (Ground Control Points) — the location and ids of all the control points need to be maintained in GIS (Geographical Information System) form and the coordinated list needs to be maintained in both system of latitude/longitude and WGS 84 (World Geodetic System 1984) and UTM (Universal Transverse Mercator) Coordinate System zone) via CORS (Continuous Operating Reference System) network.

iv. Metadata of features. Raw data of the ground survey work.

v. Proper indexed map with proper sheet number on the following scales:
    a. Vertical Accuracy 0.2 m for all areas (Rural abadi area/lal dora)
    b. Village Lal Dora/Abadi on 1:500 (Ortho Rectified Images at 5 cm GSD (Ground Sampling Distance); ± 5 cm Horizontal accuracy

vi. Mosaic map of Village. Spatial and non-spatial data dictionary with feature codes, feature type (line, points and polygon). Feature description and symbols.

vii. GIS data base prepared on 1:500 scale on UTM projection and WGS-84 datum.

viii. DEM of ≤ 20 cm vertical accuracy for the village habited area.

ix. Hard copy maps on 1:500 scale (04 No's each) for a village on good quality 90 GSM paper along-with pdf copy for future printing purposes.

x. Property Cards duly printed under the guidance of the State Govt.

xi. Training courses for technical staff of at various levels in IISM, Hyderabad.

9.2. Ownership of Data

The orthorectified Base maps shall be jointly owned by the Survey of India, Ministry of Panchayati Raj and State Government. All processed data products and final data products will be jointly owned by the Survey of India, Government of India and State Government. All the agencies (Survey of India, Ministry of Panchayati Raj through NIC-GIS division and State Government) shall have the rights to use the data generated under this project for their internal applications

S No	Data Generated	Data Owner	Data Stored at	Format of data	Mechanism of data sharing
1	Ortho-Rectified Image (ORI) of better than ± 5 cm GSD	Jointly owned by SoI, DoLR (GoI), MoPR (GoI) and State Govt	Data Centre Infrastructure available and funded under Digital India Land Records Modernization Programme (DILRMP) scheme of Department of Land Records, Ministry of Rural Development	Geo-Tiff format	SFTP web services
2	GIS data base* prepared on 1:500 scale on UTM projection and WGS-84 datum	Jointly owned by SoI, MoPR (GoI), and State Govt	NDC/Cloud	Shapefiles/ RDBMS	SFTP web services
3	DEM/DSM of better than ± 20 cm accuracy	Jointly owned by SoI, MoPR (GoI), and State Govt	SoI servers / data center	Geo-Tiff format	SFTP web services
4	Property Card data (Record of Rights)	Revenue Department of respective State Govt	State data centre	NA	To be decided by respective State IT team / State NIC unit

S No	Data Generated	Data Owner	Data Stored at	Format of data	Mechanism of data sharing
5	Hard copy maps on 1:500 scale (04 No's each) for a village on good quality 90 GSM paper along-with pdf copy	Revenue Department of respective State Govt	i. Gram Panchayats ii. Tehsil Record Centre iii. District Record Centres iv. State Record Centre	PDF	Hard Copies/CDs

*** GIS Database**

i. GIS Data would be jointly owned as mentioned above, except the Property related data

ii. The data related to Property details would be owned by State Revenue Department as it has the authority to mutate the Right of Records (RoRs) and update the maps. Hence, State Revenue Department will be the owner/host this data and others will have a right to view

iii. Other updated GIS data layer would be shared by The Talathi/Patwari level officer once every year incorporating updations that have been done in the preceding 12 months.

9.3. Year -Wise Coverage**

The overall project timeline covering around 6.62 lakh villages under the SVAMITVA Scheme is estimated to be for 5years from FY 2020-21 to FY 2024-25 with the pilot phase of 1 year from FY 2020-21. An *indicative* coverage is given below:

##	State	2021-22	2022-23	2023-24	2024-25
		No. of Villages Covered			
1	Jammu & Kashmir	0	0	0	6850
2	Ladakh	0	0	0	243
3	Andaman & Nicobar	0	0	552	0
4	Andhra Pradesh	6000	11950	0	0
5	Arunachal Pradesh	0	0	0	5577
6	Assam	0	0	21000	7680
7	Bihar	0	10000	35265	0

##	State	2021-22	2022-23	2023-24	2024-25
		No. of Villages Covered			
8	Chandigarh	0	0	0	0
9	Chhattisgarh	8000	12578	0	0
10	Dadra & Nagar Haveli	0	70	0	0
11	Daman & Diu	0	31	0	0
12	Delhi	0	0	0	0
13	Goa	0	410	0	0
14	Gujarat	1000	8510	9505	0
15	Haryana	0	0	0	0
16	Himachal Pradesh	0	0	8000	12961
17	Jharkhand	10000	22725	0	0
18	Karnataka	31207	0	0	0
19	Kerala	464	1200	0	0
20	Lakshadweep	0	27	0	0
21	Madhya Pradesh	32600	0	0	0
22	Maharashtra	39137		0	0
23	Manipur	0	0	3798	0
24	Meghalaya	0	0	0	6846
25	Mizoram	0	0	0	838
26	Nagaland	0	0	0	1617
27	Odisha	2000	50141	0	0
28	Puducherry	0	125	0	0
29	Punjab	5045	8000	0	0
30	Rajasthan	13000	33543	0	0
31	Sikkim	0	454	0	0
32	Tamil Nadu	0	1263	17200	0
33	Telangana	1000	10234	0	0
34	Tripura	0	0	898	0
35	Uttar Pradesh	30000	0	0	0
36	Uttarakhand	12548	0	0	0
37	West Bengal	0	33002	8000	0
Total		**192001**	**204263**	**104218**	**42612**

** The list is subject to changes approved by Secretary, Ministry of Panchayati Raj based on States signing of MoU with Survey of India and the pace of implementation of Scheme in States/UTs

Chapter- 10

STATES UNDER VIth SCHEDULE OF THE CONSTITUTION OF INDIA

10.1. Introduction

i. The VIth Schedule of the Constitution of India contains certain provisions for the administration of specified tribal areas in Assam, Meghalaya, Tripura and Mizoram, according to Article 244 of the Indian Constitution.

ii. The VIth Schedule seeks to safeguard the rights of the tribal population through the formation of Autonomous District Councils (ADC). ADCs are bodies representing a district to which the Constitution has given varying degrees of autonomy within the state legislature. The governors of these states are empowered to reorganize boundaries of the tribal areas

iii. While these areas fall within the executive authority of the state, provision has been made for the creation of the District Councils and Regional Councils for the exercise of the certain legislative and judicial powers.

iv. In all, there are 10 areas in the Northeast that are registered as autonomous districts under the VI Schedule of the constitution of India – three each in Assam, Meghalaya and Mizoram and one in Tripura.

STATE	Autonomous Districts
Assam	▪ The North Cachar Hills District. ▪ The Karbi Anglong District ▪ The Bodoland Territorial Areas District
Meghalaya	▪ Khasi Hills District. ▪ Jaintia Hills District. ▪ The Garo Hills District.
Tripura	▪ Tripura Tribal Areas District.
Mizoram	▪ The Chakma District. ▪ The Mara District. ▪ The Lai District.

10.2. Local Governance in 6th Scheduled States of North East Region

6th Scheduled States	Nodal Department for the ADC	Name of ADC	District Level	Intermediate Level	Village Level
Assam	Assam Hills Area Development Department	Bodoland	BTC	-	VCDC
		North Cachar Hills (Dima Hasao)	NCHADC	-	VCDC (Not Constituted)
		Karbi Anglong	KAAC	-	VCDC (Not Constituted)
Tripura	Tribal Welfare Department	Tripura Tribal Areas	TTADC	Zonal offices, Sub-Zonal offices	Village Committee
Mizoram	District Council Affairs Department	Chakma	CDC	-	Village Committee
		Lai	LDC	-	Village Committee
		Mara	MDC	-	Village Committee
Meghalaya	District Council Affaires Department	Garo	GHADC	-	Village Council
		Jaintia	JHADC	Elaka	Village Council (Durbar Shnongie)
		Khasi	KHADC	Elaka	Village Council (Durbar Shnongie)

10.3. Status of Land Ownership by Individual, Record of Rights, Tax Collection and Cadastral Maps in the VIth Scheduled areas (state wise)

State	Individual Land Ownership	Record of Rights	Property Tax	Cadastral Maps	ADCs (#Villages in ADC)
Assam	Yes- land is leased to owners	Yes- “Patta” is given to the owners for residential purpose for a duration of 30 years. Patta can be mortgaged	Yes	No	▪ Karbi Anglong ▪ Bodoland ▪ North Cachar Hills (Dima Hasao)
Meghalaya	Yes- Permanent Ownership of land exists	Yes- Property can be registered through District Commissioner office	No	No	▪ Jaintia (348) ▪ Garo ▪ Khasi (2387)
Mizoram	Yes- Permanent Ownership of land exists	Yes – Property can be registered through District Commissioner office	No	No	▪ Chakma (73) ▪ Lai (95) ▪ Mara (77)
Tripura	Yes- Permanent Ownership of land exists	Yes- Land Revenue Dept. provides RoR- “Khatian”	No	Yes	▪ Tripura Tribal Areas (527)

Land is inherited in the family. Buying and selling of land does take place but only within the community

10.4. Issues pertaining to land holdings and transfers in VI Schedule

i. In the hill areas of India’s North Eastern region inhabited mostly by tribal population, i.e. the areas included under the VIth schedule, the land tenure system is markedly different from the system found in the other areas. In such areas, the individual rights over land is yet to take the form of full property rights in the sense that transfer of these rights is subject to restrictions if not virtually possible.

ii. Non-transferability of holding rights renders land unsuitable as collateral for the purpose of securing institutional credit to land holders. This has long been cited as a constraint on extension of institutional credit in the hill economies of the region.

iii. Agriculture in the hills, traditionally, has been shifting in nature due to nomadic population with no fixed location of settlement. Land used to be communally held and the rights to land used to be distributed to families according to customary norms by the village council or the village chief as the case may be and as such the land revenue is not collected. Absence of land revenue did not necessitate cadastral survey and settlement of land ownership.

iv. In those parts of the hills of the North East where individual holdings of land have emerged, transfer of the holding is possible, and it takes place frequently but within the tribal community only. Details of the modalities of such transfers differ from state to state and in some cases even within the state.

v. In some cases, transfer by sale of individual holdings within a village can take place within members of the same tribe, and such transfers are recognised by the village community.

vi. In some cases, sale deeds on plain or stamped papers are executed by the transacting parties to record the transfer. But the process does not result in any formal record or documents conferring land holding rights.

vii. Inter-tribal transfer of individual holdings of village land is not a general practice, though such transfer of communally held land are known to be in practice.

viii. In towns, transfer of land holdings among individuals of even different tribes but of the same state is generally permissible. But transfer of land holding rights to non-tribal is prohibited by law in all the hill areas to prevent alienation of tribal land.

10.5. Benefits of SVAMITVA scheme for the Areas under 6th Schedule

i. Currently, there are no cadastral maps in existence for the states of Assam, Meghalaya and Mizoram. SVAMITVA scheme using latest drone technology and centimetre scale mapping through CORS monumentation could provide digitized high-resolution images to land records/revenue department for better village level planning.

ii. The digitized high-resolution maps of land holdings could help in having a record of land under possession by various communities, unpossessed forest land, government land etc. which shall be a valuable assistance to local level planning. It shall also bring to notice any unauthorised possessions or encroachments on the land and will help reduce property related disputes at village level.

iii. In areas having are permanent ownership of land inside ADCs but Records of Rights has not been given due to various reasons, SVAMITVA scheme could help bring such fringe segment of the population into the mainstream and empower them to avail financial and other benefits

iv. Property tax collection in ADCs like Karbi Anglong, Assam can be further augmented through better demarcation of properties

v. **It is further recommended that the competent authorities in these areas may review and suitably amend their acts/rules pertaining to land ownership, so as to obtain maximum benefit from the SVAMITVA scheme**.

Chapter- 11

IT INFRASTRUCTURE, HARDWARE AND SOFTWARE

IT infrastructure, Hardware and Software need for data processing, storing and hosting is illustrated below. ***This component is not funded under the scheme***

11.1. Post Survey Data Processing at SoI Lab:

The necessary Hardware such as Servers, Desktops, Plotters, Printers and Software required for processing of data acquired through Drones, carrying out digitization activity, feature extraction etc. will be procured, installed and operated by SoI. Apart from data processing software, SoI will make use of existing software / develop software to generate:

i. GIS ready LPM including base map overlaid by different layers of topographical features, man-made structures, land parcel information, boundaries information, etc. along with linked attribute as per the requirement of respective State Revenue Department

ii. Integration of Spatial and Textual data: Occupant data from the available records, including Gram Panchayat records, shall be integrated with LPMs generated.

11.2. Infrastructure need from State Government

State Governments would manage and maintain the data generated.

i. During project execution: SoI will be making use of all the infrastructure at SoI Lab and will deliver the intermediate Maps and final data. If department wish to do QC on digital data at Taluka level, a software VPN can be established to transfer data from SOI lab to Taluka offices.

ii. Storing Hard Copies of data

Hard copies of the Maps created after Survey would be kept at

a. Gram Panchayats
b. Tehsil Record Centre
c. District Record Centres
d. State Record Centre

iii. **Storing and Hosting of Digital Data**

   a. For hosting and storing the data created under the scheme, the Data Centre Infrastructure available and funded under Digital India Land Records Modernization Programme (DILRMP) scheme of Department of Land Records, Ministry of Rural Development could be utilised.

   b. Develop a new software or Upgrade ***Bhunaksha*** for hosting and further updating and maintenance of spatial data.

iv. **Seamless integration of Bhu-Naksha/ related Software with SVAMITVA maps.**

11.3. Infrastructure need from SoI

The SoI would share this data with State Government, Ministry of Panchayati Raj through NIC as per mutually agreed mechanism for data sharing.

11.4. Hosting and Maintenance of SoI Applications

Survey of India has developed SAHYOG and SARATHI applications to automate the process the survey related activities.

SAHYOG application is a mobile based application to capture the ownership data of Property owners under SVAMITVA Scheme. SoI has its own cloud infrastructure to store the data collected by SAHYOG application. SOI is been continuously updating and modifying the application based on States requirements.

SARATHI application automates the process of features/map correction, which is otherwise done manually by marking corrections on printed copies of maps. SoI is responsible for customization and maintenance of the application

11.5. Linking of Property data with Aadhar

Suitable mechanisms may be devised by the State governments to establish id/entity of the individual property owners. One of the means could be linking of the demarcated property of the individual with his/ her Aadhaar database. Once integrated, automatically the data of the property owner could be accessed by the stakeholders viz. when the individual approaches financial institutions like banks for getting loan the synced database can be readily available

11.6. Linking of Property Card with DigiLocker

DigiLocker securely store and links documents that anyone can access anytime, anywhere online. State may integrate Property cards created under SVAMITVA Scheme with DigiLocker. This would enable online access of Property Cards by any Property owner.

Chapter- 12

COST NORMS

Scheme Component-wise Cost Norms are illustrated as below: -

12.1. Establishment of CORS Network

Sl No.	Sub-Activities
1	Civil construction work a. Concrete Platform b. Security Fencing
2.	Installation commissioning of CORS stations a. CORS Network Receivers b. Other IT Hardware c. Power back-up d. Hardware Warranty for 05 years e. Operation and Maintenance for 05 years

**Estimated Cost for CORS Network establishment is based on the tendering processes carried out for establishment of CORS Network in State of Karnataka; State of Maharashtra and State of Uttar Pradesh as per Govt procurement guidelines and GFR terms.*

NOTE:

Actual cost would be based on the outcome of the fresh tendering process proposed to be carried out for Establishment of the CORS Network for areas proposed under this project.

Per network cost = approx. Rs. 24 lakhs

12.2. Large Scale Mapping using Drone

Sl No.	Sub-Activities	Cost (Rs per village) *
1	Provisioning of GCPs for flying by SoI	Rs 3200
2	Drone flying for data acquisition	
3	Drone data processing: Generation of	Rs.250

Sl No.	Sub-Activities	Cost (Rs per village) *
	ORI) and DEM	
4	Feature Extraction, Attribute entry and linking	Rs.1950
5.	Preparation of Final Maps/data; Printing of village and LPM maps	Rs.600
	TOTAL	**Rs. 6000 per Village**

** Operational expenses towards field activities at Sl 1, 2 and 4 by SoI personnel including hiring of local labours, hiring/procuring the field vehicles and other petty contingent expenses related to field works and capital expenses towards instruments, hardware, software and equipment for use in project for mapping activities in office as well as field. Feature extraction work can be outsourced (as per GFR terms) in case of shortage of trained SoI digitizers/surveyors.*

NOTE:

i. *SoI has not charged salaries for its staff to be deployed in the project work in the estimated/final cost.*

ii. *Out of pocket exp*

iii. *enses required for execution of field activities viz travelling, lodging, boarding, food expenses, communication, hiring of vehicles, hiring of local labour, Fuel- lubricants etc only shall be charged.*

iv. *Out of pocket expenses are towards field survey activities i.e.*
    a. *TA and DR expenses of SoI field surveyors,*
    b. *Boarding and lodging expenses in field of SoI field surveyors,*
    c. *Hiring field vehicles (including fuel and lubricants) and local labour or survey khalasi for survey activities,*

v. *Miscellaneous goods items for procurement are Hard-disks, computers, drone data processing software licenses, Entry level workstations, NAS boxes etc.*

vi. *Maintenance of SoI owned goods covers routine repairs/calibration/ breakdown repairs of SoI owned instruments, equipment being used in the Project activities viz GNSS Base Receivers, GNSS Rovers, Total Station, Levelling Instruments, Relative gravimeter, Rugged Field data collector, Mobile workstations, Entry/Mid-Level workstations etc.*

vii. *SoI will not charge cost towards control centre components and its DR centre components under the project.*

viii. *SoI will bear or will not charge cost towards Geoid Model development sub-activity.*

ix. *No additional cost for QA (Quality Assurance)/QC (Quality Control) work has been charged by SoI in the estimated cost.*

x. *GIS software cost has not been charged by SoI in the estimated cost.*

xi. *No additional cost towards Capacity Building or training of State Govt officers/staff viz Tuition fee, guest faculty fee has been charged by SoI in the total project cost.*

12.3. Programme Management Unit

i. National Programme Management Unit *

	No. of Consultants				**Rate per month**
	2021-2022	**2022-2023**	**2023-2024**	**2024-2025**	
Senior	5	5	5	5	*As per NICSI rates*
Junior	5	4	3	2	63130

ii. State Programme Management Unit *

No. of Consultants				**Rate per month**
2021-2022	**2022-2023**	**2023-2024**	**2024-2025**	
52	44	26	15	65,000

**Indicative list of allocation of SPMU per year. This may change based on boarding and progress of States/UTs on SVAMITVA Scheme*

#	STATES/UTs	FY 2021-2022	FY 2022-2023	FY 2023-2024	FY 2024-2025
1	Jammu & Kashmir	0	0	0	2
2	Ladakh	0	0	0	0
3	Andaman & Nicobar	0	0	0	0
4	Andhra Pradesh	3	3	0	0
5	Arunachal Pradesh	0	0	0	2
6	Assam	0	0	4	4
7	Bihar	0	5	5	0

#	STATES/UTs	FY 2021-2022	FY 2022-2023	FY 2023-2024	FY 2024-2025
8	Chandigarh	0	0	0	0
9	Chhattisgarh	3	3	0	0
10	Dadra & Nagar Haveli	0	0	0	0
11	Daman & Diu	0	0	0	0
12	Delhi	0	0	0	0
13	Goa	0	1	0	0
14	Gujarat	3	3	3	0
15	Haryana	0	0	0	0
16	Himachal Pradesh	0	0	3	3
17	Jharkhand	4	4	0	0
18	Karnataka	4	0	0	0
19	Kerala	1	1	0	0
20	Lakshadweep	0	0	0	0
21	Madhya Pradesh	5	0	0	0
22	Maharashtra	5	0	0	0
23	Manipur	0	0	2	0
24	Meghalaya	0	0	0	2
25	Mizoram	0	0	0	1
26	Nagaland	0	0	0	1
27	Odisha	5	5	0	0
28	Puducherry	0	0	0	0
29	Punjab	3	3	0	0
30	Rajasthan	5	5	0	0
31	Sikkim	0	1	0	0
32	Tamil Nadu	0	3	3	0
33	Telangana	2	2	0	0
34	Tripura	0	0	1	0
35	Uttar Pradesh	6	0	0	0
36	Uttarakhand	3	0	0	0
37	West Bengal	0	5	5	0
Total		**52**	**44**	**26**	**15**

12.4. IEC Activities

Per village cost*: Rs. 500

IEC Budget would be disbursed at District level (Consolidating the villages in the district) and **District-level Monitoring and Review Committee would oversight/ monitor the IEC budget*

Note: Any shortfall may be supplemented from IEC component of RGSA scheme

12.5. Enhancement in Spatial planning Application and development of online Monitoring System

Activities	Per Year
i. Leveraging digital spatial data/maps created under drone survey for creation of spatial analytical tools to support preparation of GPDP. ii. Development and maintenance of online monitoring and reporting Dashboard of the Scheme	1.5 Crores

ICT infrastructure for Svamitva**				
S.No.	**Item description**	**No. of units**	**Per unit cost**	**Total Cost**
1	Server 4 proc machine with 22/24 cores per proc	2	2500000	50,00,000
2	Windows Server and VM ware cost			1,00,00,000
3	ArcGIS Advance Server + Desktop	2		1,10,00,000
4	Apollo Advanced Server (image serving)	2		1,00,00,000
5	SAN space 2 PB#*	1		12,00,00,000
6	Data Processing & maintenance***			3,00,00,000
	Total			18,60,00,000
	NICSI Charges +Taxes			4,88,43,600
	Grand Total			23,48,43,600

**** The SAN space is calculated based on existing model 2GB per village for 6 lakh villages.***

***** Data processing costs are tentative***

***** Cost will be arrived as per actuals***

# SAN cost may be spread over two years

******Data Processing and maintenance cost spread over 4 years***

Chapter- 13

FUTURE UPDATION OF PROPERTY DATA AND MAPS

The State Government shall be responsible for any future updation of rural abadi property data and conducting surveys on regular basis.

The mechanism for future updation of Property data and maps of a State shall be decided by the State Government.

13.1. Property data updation

The updation of property related data would be done as a part of regular data maintenance and the update policy defined as per rules and regulation of State Revenue Department. It is the responsibility of State Revenue Department officials to update the Property Data.

13.2. Map data updation

Survey of India would provide training to the State Revenue Department officials on the operations and usage of various applications and technologies for map data updation (e.g. data updation, use of CORS Network Rover connected FDC), which are to be used in the project. The state line departments will build in-house capacity to handle the project.

13.3. Future updation

Once the GIS database is prepared encompassing the 6.62 lakh villages, the State Governments would be responsible for conducting future surveys and updating the GIS database. The update frequency of re-survey would be decided by State Government.

Chapter- 14

RECOMMENDATIONS FOR STATE GOVERNMENT

The Scheme has many facets. In order to realise its fullest potential, the following suggestible measures may be undertaken by the respective States. This would not only ensure better reach of the scheme benefits, but also enhance the socio-economic profile of the Panchayats, making them self- sustainable.

14.1. Recognition and Legal Sanctity of Property Cards:

The recognition of Property Cards by financial institutions as a document which they can lend against is important. The Property Card should serve as an effective collateral which the institution should be confident of redeeming in case of default by the borrower. In order to meet the desirable outcome of the property Cards, State may consider following for the recognition and legal sanctity of Property cards

i. In order for people to secure loans on the basis of Property Card, the State may take measures to ensure legal validity of transfer of Property. Engagement with Banks right from the start so that the property card is recognized by them for loan purposes may be a good strategy

ii. The Property Cards owner’s records may provide for noting of charge/ mortgage/ attachment over the land when such charge/ mortgage/ attachment is either created by the landowner/ court/ authority in favour of any person/ bank/ lending institution

iii. Provision may be made for stamp duty and registration of Property Cards so that duplicate/fake Property Card are not used for availing multiple lending by fraud. Official record for registration of plots may be created at the district level.

iv. The property may be rendered transferable, including for Patta awardees - registration authorities may allow creation of registered mortgage/ sale of such land.

v. Procedures may be defined to determine mutation of property with due legal consultation- the mutation on occasion of voluntary (transfer, sale, gift, mortgage) or involuntary (Succession) be clearly defined.

vi. To increase the accessibility, the spatial record of property may be created and geotagged with the Property Cards. This data could be utilised for identification of part or areas of property, which would further enable prevention of frauds.

vii. The record of Property Cards owners under SVAMITVA Scheme may be aligned with land revenue records

14.2. Inclusive Society Implementation Approach

States may ensure that women/widows, orphans, dalits, SCs/STs are not deprived of their legitimate title in the Property card.

i. Gender Responsive

As per the Census 2011, there are 71.4 million single women, which includes unmarried women, widows, divorcees, etc. who are often excluded from ownership and inheritance rights. At 12 percent, single women form a significant population. This may in fact be an opportunity to recognize women's ownership rights as SVAMITVA grants Property Cards based on 'possession' and not only on basis of 'inheritance'. Hence, States may allow to include details of more than one owner, specifically recognizing joint ownership of property by women. Further, State with the help of civil society organisations may sensitize field functionaries for gender inclusion.

ii. Recognize existing gaps

States may like to recognize the rights of those who have been historically marginalized from owning land and property, such as the Scheduled Tribes and Scheduled Castes, and ensure that it does not end up perpetuating existing social inequity. For instance, in Maharashtra's drone mapping survey, if a resident in the abadi area had enjoyed undisturbed possession of the land since 2011, they were recognized as the rightful 'owner'. Madhya Pradesh has also awarded *Adhikar Abhilekh* to residents outside Abadi, within limits.

14.3. Determination of Property Tax

i. The Constitution provides for the States to endow Gram Panchayats with the opportunity to raise resources to function as units of self-governance. In India, Panchayats rely to an extent of about 95% on devolution through Finance Commission grants. The per capita own source of revenue for Panchayats is just 0.1%. Most State Panchayati Raj Acts provide for Property Tax to be determined and levied by the Panchayats. However, this opportunity of raising revenues through Property Tax is utilised only by a few States.

ii. With clear titles, accurate size determination and transparent land titles, SVAMITVA provides the States with an unprecedented prospect of empowering the Gram Panchayats to levy and collect Property Tax, which would be available to the Panchayat for local use, leading towards *Atmanirbharta*.

iii. This would provide financial wherewithal to the Gram Panchayats and enable them to function as units of self-government. It shall also instil a sense of self esteem to the residents whereby they would feel directly involved in the data-based fund generation and utilisation at the grass root level. It is also pointed out that the experience of Maharashtra in this regard has also been very encouraging.

iv. The States may like to actuate the already existing provisions in the State Panchayati Raj Acts and trigger the collection of Property Tax by Gram Panchayats.

14.4. Other Aspects

The true objective of the ‘Property Card’ and the scheme may always be kept in mind and it should be understood by all the stakeholders that the end goal of the scheme is not to produce the property cards but to empower the rural beneficiary to benefit from it and the States, local bodies and other public institutions to use this as a foundation to design and deliver various schemes and services for the upliftment of rural beneficiaries

i. It has been widely noted that with the passage of time, people come to settle on agricultural land, therefore, provisions for re-categorized of such Agriculture Lands into Abadi Areas may be enacted in the respective State laws.

ii. States may also like to enforce a time limit for the completion of survey activity from the date of proclamation of Abadi survey, as in the case of the state of

Madhya Pradesh.

iii. In order to assess the quality of Property cards and performance of the States, a ranking system is in the works vis-à-vis enhancement in Gram Panchayat own source revenue, ease of obtaining mortgage and social justice etc.

The aforesaid measures are by no means exhaustive- the States shall be ranked based on their strategies and actions to fully realise the Scheme’s objectives.

Chapter- 15

TECHNICAL GUIDELINES

15.1. Standardisation of GIS Database

The following main data layers shall be generated under the survey

i. Cadastral
ii. Transportation
iii. Hypsography or Terrain
iv. Hydrology
v. Habitation
vi. Drainage
vii. Land Use or land Cover (LU/LC)
viii. Point of Interest

15.2. Symbology

Symbology shall be defined as per standard SoI symbology and Meta-data as BIS standard shall be prepared for GIS database.

Annexures

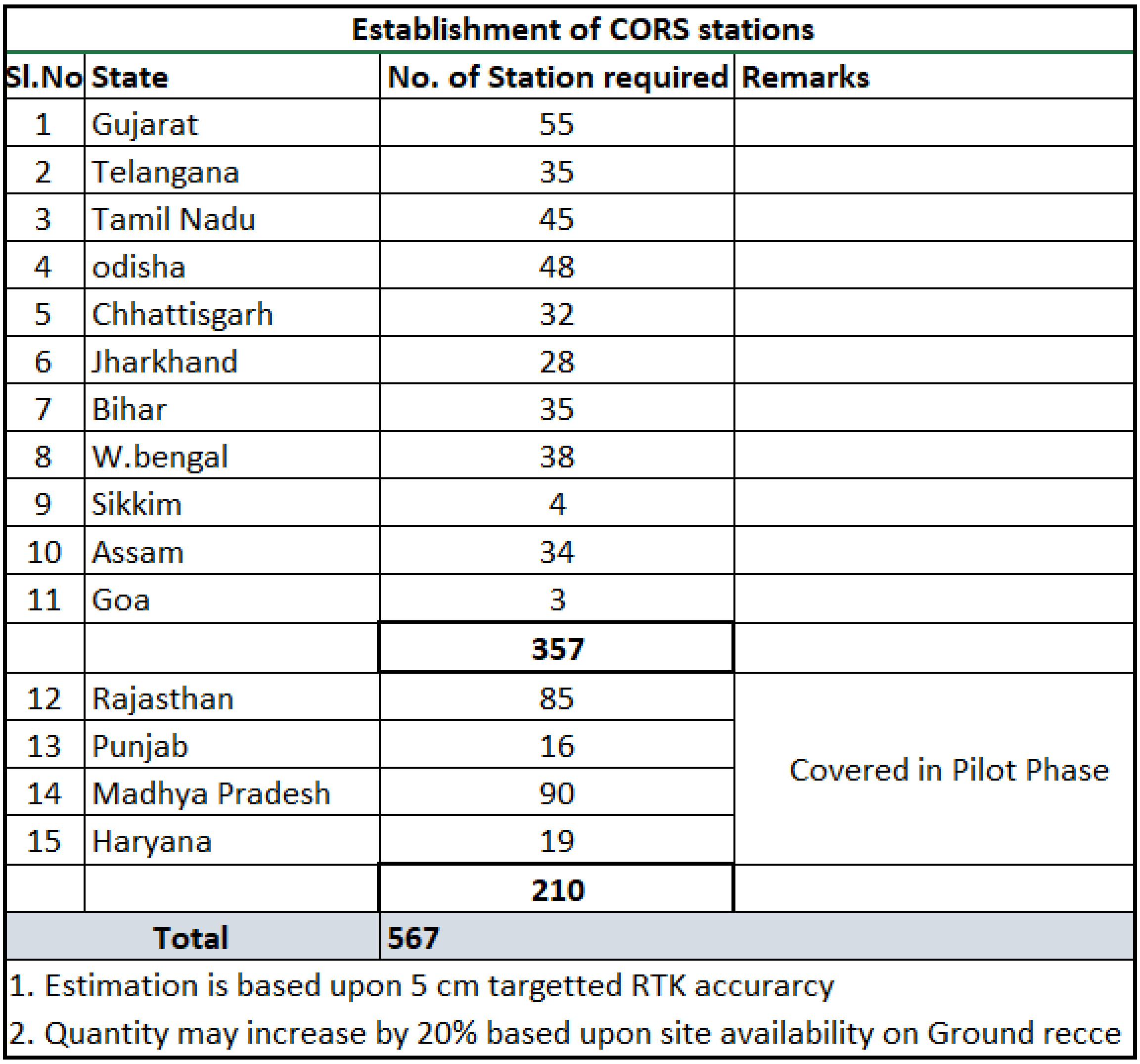
Annexure I: State wise count of Villages covered under Scheme**

##	State	2021-22	2022-23	2023-24	2024-25
		No. of Villages Covered			
1	Jammu & Kashmir	0	0	0	6850
2	Ladakh	0	0	0	243
3	Andaman & Nicobar	0	0	552	0
4	Andhra Pradesh	6000	11950	0	0
5	Arunachal Pradesh	0	0	0	5577
6	Assam	0	0	21000	7680
7	Bihar	0	10000	35265	0
8	Chandigarh	0	0	0	0
9	Chhattisgarh	8000	12578	0	0
10	Dadra & Nagar Haveli	0	70	0	0
11	Daman & Diu	0	31	0	0
12	Delhi	0	0	0	0
13	Goa	0	410	0	0
14	Gujarat	1000	8510	9505	0
15	Haryana	0	0	0	0
16	Himachal Pradesh	0	0	8000	12961
17	Jharkhand	10000	22725	0	0
18	Karnataka	31207	0	0	0
19	Kerala	464	1200	0	0
20	Lakshadweep	0	27	0	0
21	Madhya Pradesh	32600	0	0	0
22	Maharashtra	39137		0	0
23	Manipur	0	0	3798	0
24	Meghalaya	0	0	0	6846
25	Mizoram	0	0	0	838
26	Nagaland	0	0	0	1617
27	Odisha	2000	50141	0	0
28	Puducherry	0	125	0	0
29	Punjab	5045	8000	0	0
30	Rajasthan	13000	33543	0	0
31	Sikkim	0	454	0	0
32	Tamil Nadu	0	1263	17200	0
33	Telangana	1000	10234	0	0
34	Tripura	0	0	898	0

##	State	2021-22	2022-23	2023-24	2024-25
		No. of Villages Covered			
35	Uttar Pradesh	30000	0	0	0
36	Uttarakhand	12548	0	0	0
37	West Bengal	0	33002	8000	0
Total		**192001**	**204263**	**104218**	**42612**

***indicative list – The list is subject to changes approved by the Secretary, Ministry of Panchayati Raj based on States/UTs signing MoUs with Survey of India and pace of implementation in States/UTs*

Annexure II : State wise CORS Status **



Establishment of CORS stations

Sl.No	State	No. of Station required	Remarks
1	Gujarat	55	
2	Telangana	35	
3	Tamil Nadu	45	
4	odisha	48	
5	Chhattisgarh	32	
6	Jharkhand	28	
7	Bihar	35	
8	W.bengal	38	
9	Sikkim	4	
10	Assam	34	
11	Goa	3	
		357	
12	Rajasthan	85	Covered in Pilot Phase
13	Punjab	16	
14	Madhya Pradesh	90	
15	Haryana	19	
		210	
Total		**567**	

1. Estimation is based upon 5 cm targetted RTK accurarcy
2. Quantity may increase by 20% based upon site availability on Ground recce

Source: Survey of India

***indicative list – The list is subject to changes approved by the Secretary, Ministry of Panchayati Raj*

Annexure III : Component to be funded by the State Governments, local bodies, user beneficiaries or private parties

A. State Government

i. Area/site for Continuously Operating Reference Stations network installation shall be provided by State Government, along with Electricity and physical security of CORS equipment's to Survey of India

ii. Facilitates hiring of field vehicles, local labours, accommodation for field teams etc.

iii. Ground marking of parcels/properties in area to be surveyed using white powder (Chuna etc.)

iv. Ground-Truthing, validation of Land Parcel maps shall be carried out by State Revenue Department

v. Digitization of existing GP property (Tax) Registers (wherever applicable) to make available to SoI and Enquiry Officer for preparing interim map/Records.

vi. Store, Host and update the data created under the SVAMITVA scheme; the survey could be revisited as per the frequency decided by the State Govt. or Panchayat for updating purpose.

vii. Integration of Bhu-Naksha / related Software with SVAMITVA maps

viii. Enquiry/objection process related administrative expenditure and other operational & administrative charges

***labour, material cost for demarcation related work, Gram Panchayat mobilisation, enquiry/objection process related administrative expenditure and other operational & administrative charges can be covered by the Gram panchayat utilizing funds from MGNREGA, XV Finance Commission and/or RGSA funds*

B. Survey of India

i. Data Processing: Post processing of Unmanned Aerial Vehicle images shall be carried out by Survey of India (SoI) in Geographic Information System lab at SoI regional centre. The SoI shall use their hardware and software and their GIS Lab for data Processing

ii. Ground-Truthing and validation of topographical features as derived from ortho- rectified images shall be carried out by Survey of India

iii. Symbology to be standardised across SOI, NIC & NRSC system
iv. Mapping of Drain to be included in the Survey
v. SOI to finalise the list of topographical features/ other feature as derived from ortho- rectified images, in consultation with NIC and NRSC and share the list with MoPR before the commencement of Large-Scale mapping using Drone Survey
vi. Standardisation of linking Attribute data to topographical features/ other features shall be prepared in consultation with State Nodal Department implementing the Scheme
vii. Hosting and maintenance of SAHYOG and SARATHI application

Annexure IV: Terms of Reference for Consultants

I. National Programme Management Unit

Key Responsibilities

i. Responsible for managing the day to day PMU activities.
ii. Keep track of project progress, keep the senior management and other important stakeholders informed about the project progress.
iii. Overall implementation and stakeholder coordination including facilitating awareness and handholding support
iv. Assistance to States and Survey of India viz. supporting with signing of MoU, fund disbursement to States, monitoring of project timelines etc.
v. Collaboration with Survey of India and States to monitor establishment of CORS network and large scale mapping using Drone.
vi. Provide functional inputs towards development and maintenance of online monitoring and reporting Dashboard of the Scheme
vii. Evaluation of the effectiveness of the scheme through verification and validating of project progress
viii. Cross State sharing and learning, documentation of good practices
ix. Co-ordinate the IEC activities at the national level to mobilize people to participate in drone survey. It will include running Campaign during National Panchayati Raj Day/week, dissemination of good practices and other national campaigns through various mediums including social media
x. Coordination with NIC-GIS division and NRSC Bhuvan for leveraging digital spatial data/maps created under drone survey to develop spatial analytical tools to support preparation of GPDP in Gram Manchitra application among other applications.
xi. Any other relevant activity.

Educational Qualifications

- BE/ B. Tech / Bachelors in relevant field

Experience

- 6 to 15 years

Domain Knowledge / Skills (Must Have)

- Worked in IT Project Management function or in an IT PMU/PMO setup

- Knowledge of e-Governance projects, Use of GIS and related technology.

Domain Knowledge / Skills (Preferred)

- Knowledge of latest GIS Survey technologies
- Experience in geospatial datasets and databases
- Familiarity with and usage of sources of open source maps/ shape files etc.

II. State Programme Management Unit

Key Responsibilities

i. Responsible for managing the day to day programme management activities.

ii. Keep track of project progress, keep the senior management and other important stakeholders informed about the project progress.

iii. Overall implementation and handholding to States and Survey of India.

iv. Support State Revenue department in evaluation and monitoring the progress of Large-Scale mapping using Drones

v. Consolidate the attribute information and other secondary information to be incorporated in the GIS database

vi. Support in ground-truthing of maps

vii. Facilitate signing of MoU between State and Survey of India and monitor the implementation timelines

viii. Facilitate Project progress reporting through regular updates in Monitoring Dashboard of Scheme

ix. Desirable knowledge of latest GIS Survey technologies and familiarity with and usage of sources of open source maps/ shape files etc

x. Any other relevant activity.

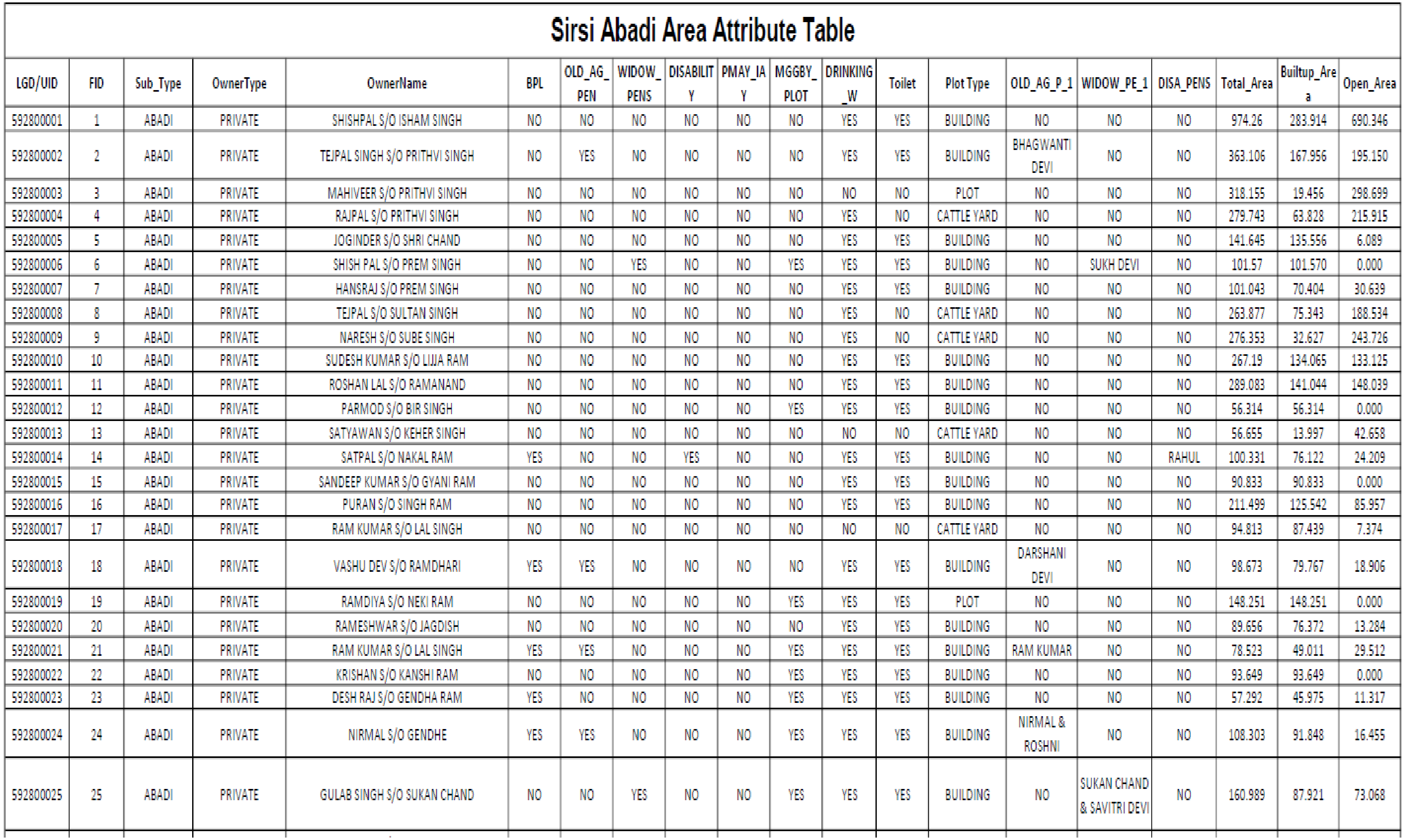
Educational Qualifications

- Any Graduate

Experience

- 1 to 3 years

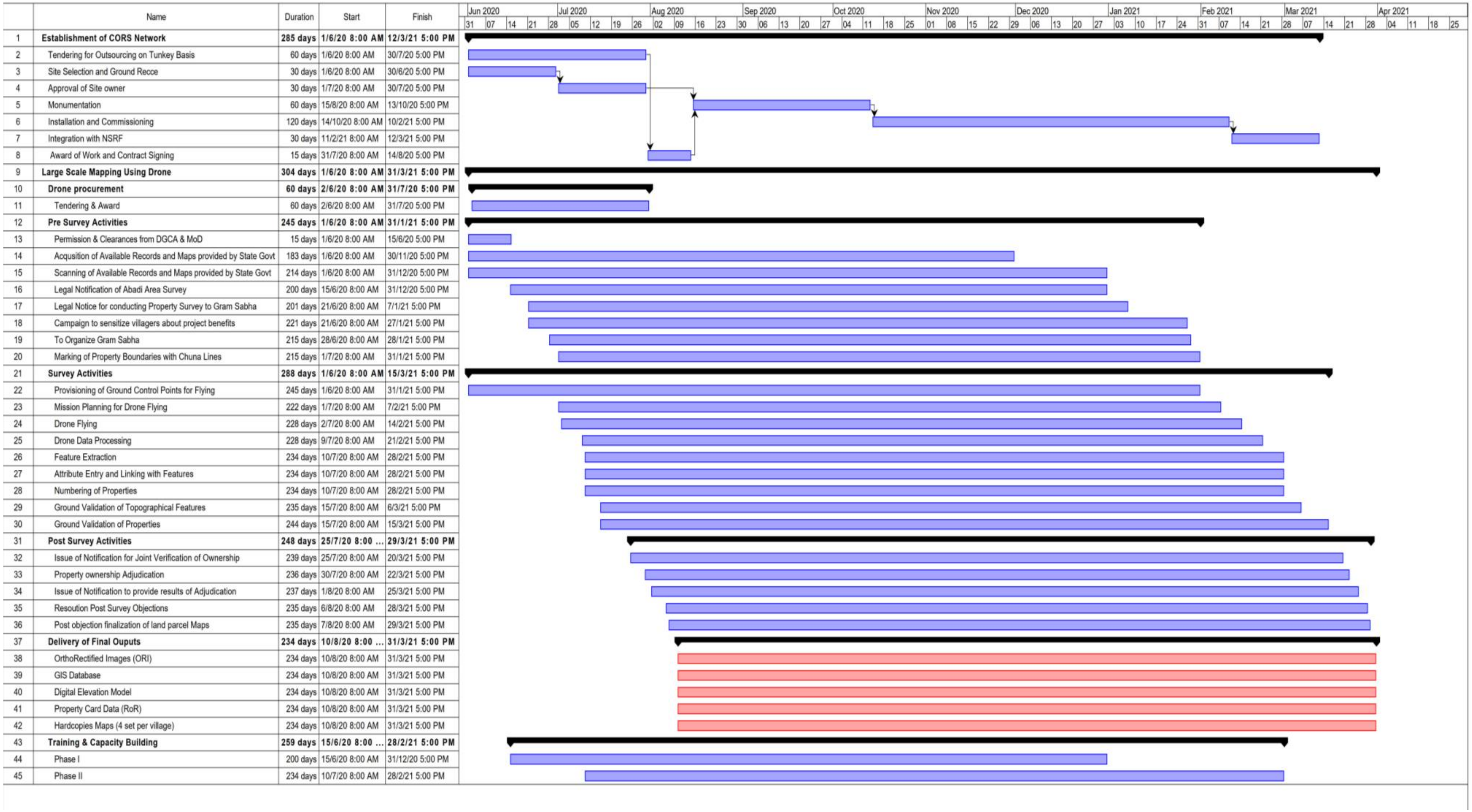
Annexure V: Sample Property Data Attributes



Sirsi Abadi Area Attribute Table

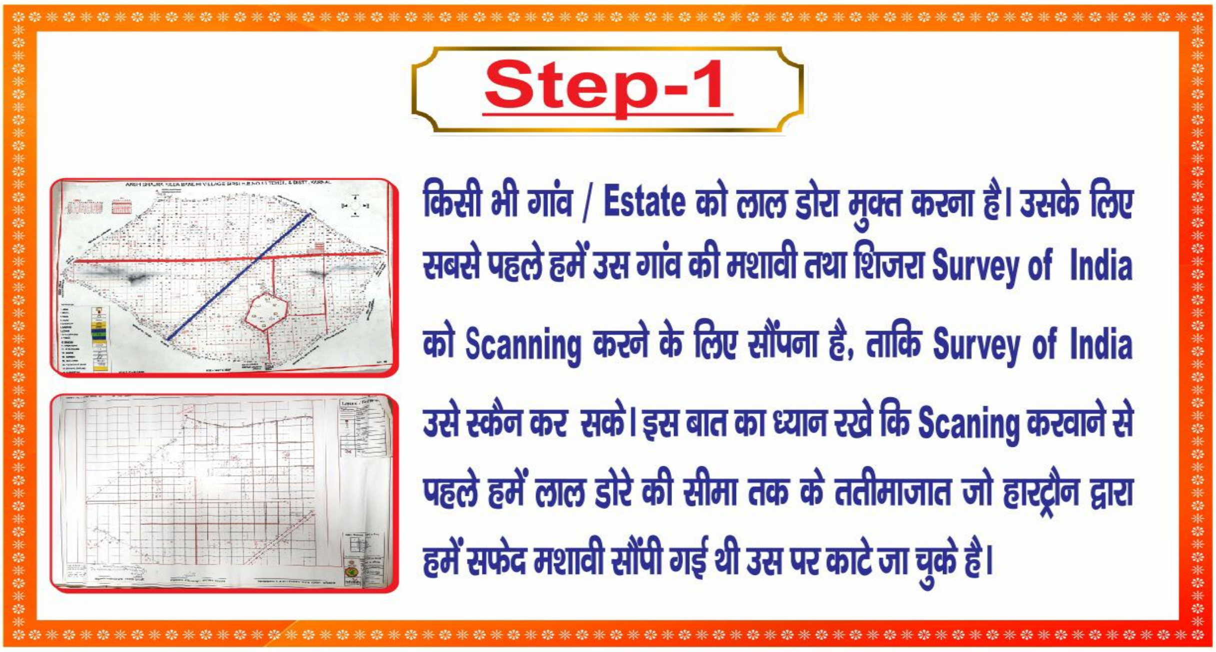
LGD/UID	FID	Sub_Type	OwnerType	OwnerName	BPL	OLD_AG_PEN	WIDOW_PENS	DISABILITY	PMAY_IAY	MGGBY_PLOT	DRINKING_W	Toilet	Plot Type	OLD_AG_P_1	WIDOW_PE_1	DISA_PENS	Total_Area	Builtup_Area	Open_Area
592800001	1	ABADI	PRIVATE	SHISHPAL S/O ISHAM SINGH	NO	NO	NO	NO	NO	NO	YES	YES	BUILDING	NO	NO	NO	974.26	283.914	690.346
592800002	2	ABADI	PRIVATE	TEJPAL SINGH S/O PRITHVI SINGH	NO	YES	NO	NO	NO	NO	YES	YES	BUILDING	BHAGWANTI DEVI	NO	NO	363.106	167.956	195.150
592800003	3	ABADI	PRIVATE	MAHIVEER S/O PRITHVI SINGH	NO	NO	NO	NO	NO	NO	NO	NO	PLOT	NO	NO	NO	318.155	19.456	298.699
592800004	4	ABADI	PRIVATE	RAJPAL S/O PRITHVI SINGH	NO	NO	NO	NO	NO	NO	YES	NO	CATTLE YARD	NO	NO	NO	279.743	63.828	215.915
592800005	5	ABADI	PRIVATE	JOGINDER S/O SHRI CHAND	NO	NO	NO	NO	NO	NO	YES	YES	BUILDING	NO	NO	NO	141.645	135.556	6.089
592800006	6	ABADI	PRIVATE	SHISH PAL S/O PREM SINGH	NO	NO	YES	NO	NO	YES	YES	YES	BUILDING	NO	SUKH DEVI	NO	101.57	101.570	0.000
592800007	7	ABADI	PRIVATE	HANSRAJ S/O PREM SINGH	NO	NO	NO	NO	NO	NO	YES	YES	BUILDING	NO	NO	NO	101.043	70.404	30.639
592800008	8	ABADI	PRIVATE	TEJPAL S/O SULTAN SINGH	NO	NO	NO	NO	NO	NO	YES	NO	CATTLE YARD	NO	NO	NO	263.877	75.343	188.534
592800009	9	ABADI	PRIVATE	NARESH S/O SUBE SINGH	NO	NO	NO	NO	NO	NO	YES	NO	CATTLE YARD	NO	NO	NO	276.353	32.627	243.726
592800010	10	ABADI	PRIVATE	SUDESH KUMAR S/O LIJA RAM	NO	NO	NO	NO	NO	NO	YES	YES	BUILDING	NO	NO	NO	267.19	134.065	133.125
592800011	11	ABADI	PRIVATE	ROSHAN LAL S/O RAMANAND	NO	NO	NO	NO	NO	NO	YES	YES	BUILDING	NO	NO	NO	289.083	141.044	148.039
592800012	12	ABADI	PRIVATE	PARMOD S/O BIR SINGH	NO	NO	NO	NO	NO	YES	YES	YES	BUILDING	NO	NO	NO	56.314	56.314	0.000
592800013	13	ABADI	PRIVATE	SATYAWAN S/O KEHER SINGH	NO	NO	NO	NO	NO	NO	NO	NO	CATTLE YARD	NO	NO	NO	56.655	13.997	42.658
592800014	14	ABADI	PRIVATE	SATPAL S/O NAKAL RAM	YES	NO	NO	YES	NO	NO	YES	YES	BUILDING	NO	NO	RAHUL	100.331	76.122	24.209
592800015	15	ABADI	PRIVATE	SANDEEP KUMAR S/O GYANI RAM	NO	NO	NO	NO	NO	NO	YES	YES	BUILDING	NO	NO	NO	90.833	90.833	0.000
592800016	16	ABADI	PRIVATE	PURAN S/O SINGH RAM	NO	NO	NO	NO	NO	NO	YES	YES	BUILDING	NO	NO	NO	211.499	125.542	85.957
592800017	17	ABADI	PRIVATE	RAM KUMAR S/O LAL SINGH	NO	NO	NO	NO	NO	NO	NO	NO	CATTLE YARD	NO	NO	NO	94.813	87.439	7.374
592800018	18	ABADI	PRIVATE	VASHU DEV S/O RAMDHARI	YES	YES	NO	NO	NO	NO	YES	YES	BUILDING	DARSHANI DEVI	NO	NO	98.673	79.767	18.906
592800019	19	ABADI	PRIVATE	RAMDIYA S/O NEKI RAM	NO	NO	NO	NO	NO	YES	YES	YES	PLOT	NO	NO	NO	148.251	148.251	0.000
592800020	20	ABADI	PRIVATE	RAMESHWAR S/O JAGDISH	NO	NO	NO	NO	NO	NO	YES	YES	BUILDING	NO	NO	NO	89.656	76.372	13.284
592800021	21	ABADI	PRIVATE	RAM KUMAR S/O LAL SINGH	YES	YES	NO	NO	NO	YES	YES	YES	BUILDING	RAM KUMAR	NO	NO	78.523	49.011	29.512
592800022	22	ABADI	PRIVATE	KRISHAN S/O KANSHI RAM	NO	NO	NO	NO	NO	YES	YES	YES	BUILDING	NO	NO	NO	93.649	93.649	0.000
592800023	23	ABADI	PRIVATE	DESH RAJ S/O GENDHA RAM	YES	NO	NO	NO	NO	YES	YES	YES	BUILDING	NO	NO	NO	57.292	45.975	11.317
592800024	24	ABADI	PRIVATE	NIRMAL S/O GENDHE	YES	YES	NO	NO	NO	YES	YES	YES	BUILDING	NIRMAL & ROSHNI	NO	NO	108.303	91.848	16.455
592800025	25	ABADI	PRIVATE	GULAB SINGH S/O SUKAN CHAND	NO	NO	YES	NO	NO	YES	YES	YES	BUILDING	NO	SUKAN CHAND & SAVITRI DEVI	NO	160.989	87.921	73.068

Annexure VI: Activity wise timelines provided by Survey of India



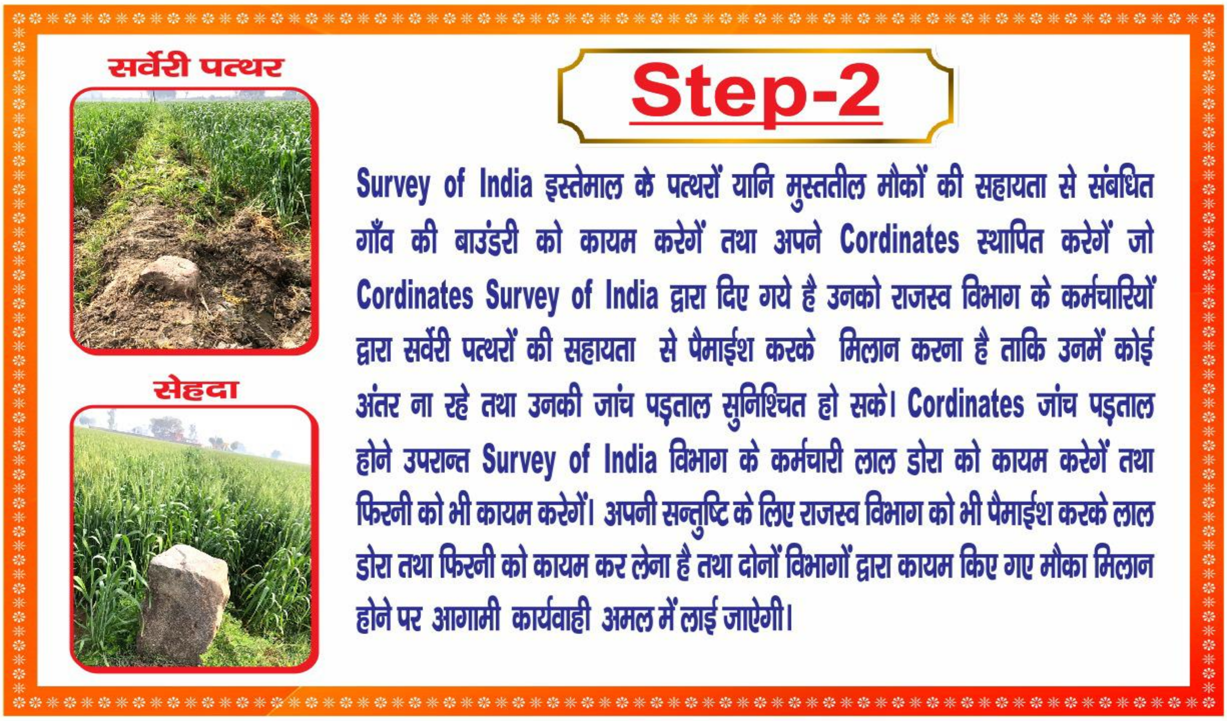
	Name	Duration	Start	Finish
1	**Establishment of CORS Network**	**285 days**	**1/6/20 8:00 AM**	**12/3/21 5:00 PM**
2	Tendering for Outsourcing on Tunkey Basis	60 days	1/6/20 8:00 AM	30/7/20 5:00 PM
3	Site Selection and Ground Recce	30 days	1/6/20 8:00 AM	30/6/20 5:00 PM
4	Approval of Site owner	30 days	1/7/20 8:00 AM	30/7/20 5:00 PM
5	Monumentation	60 days	15/8/20 8:00 AM	13/10/20 5:00 PM
6	Installation and Commissioning	120 days	14/10/20 8:00 AM	10/2/21 5:00 PM
7	Integration with NSRF	30 days	11/2/21 8:00 AM	12/3/21 5:00 PM
8	Award of Work and Contract Signing	15 days	31/7/20 8:00 AM	14/8/20 5:00 PM
9	**Large Scale Mapping Using Drone**	**304 days**	**1/6/20 8:00 AM**	**31/3/21 5:00 PM**
10	**Drone procurement**	**60 days**	**2/6/20 8:00 AM**	**31/7/20 5:00 PM**
11	Tendering & Award	60 days	2/6/20 8:00 AM	31/7/20 5:00 PM
12	**Pre Survey Activities**	**245 days**	**1/6/20 8:00 AM**	**31/1/21 5:00 PM**
13	Permission & Clearances from DGCA & MoD	15 days	1/6/20 8:00 AM	15/6/20 5:00 PM
14	Acqusition of Available Records and Maps provided by State Govt	183 days	1/6/20 8:00 AM	30/11/20 5:00 PM
15	Scanning of Available Records and Maps provided by State Govt	214 days	1/6/20 8:00 AM	31/12/20 5:00 PM
16	Legal Notification of Abadi Area Survey	200 days	15/6/20 8:00 AM	31/12/20 5:00 PM
17	Legal Notice for conducting Property Survey to Gram Sabha	201 days	21/6/20 8:00 AM	7/1/21 5:00 PM
18	Campaign to sensitize villagers about project benefits	221 days	21/6/20 8:00 AM	27/1/21 5:00 PM
19	To Organize Gram Sabha	215 days	28/6/20 8:00 AM	28/1/21 5:00 PM
20	Marking of Property Boundaries with Chuna Lines	215 days	1/7/20 8:00 AM	31/1/21 5:00 PM
21	**Survey Activities**	**288 days**	**1/6/20 8:00 AM**	**15/3/21 5:00 PM**
22	Provisioning of Ground Control Points for Flying	245 days	1/6/20 8:00 AM	31/1/21 5:00 PM
23	Mission Planning for Drone Flying	222 days	1/7/20 8:00 AM	7/2/21 5:00 PM
24	Drone Flying	228 days	2/7/20 8:00 AM	14/2/21 5:00 PM
25	Drone Data Processing	228 days	9/7/20 8:00 AM	21/2/21 5:00 PM
26	Feature Extraction	234 days	10/7/20 8:00 AM	28/2/21 5:00 PM
27	Attribute Entry and Linking with Features	234 days	10/7/20 8:00 AM	28/2/21 5:00 PM
28	Numbering of Properties	234 days	10/7/20 8:00 AM	28/2/21 5:00 PM
29	Ground Validation of Topographical Features	235 days	15/7/20 8:00 AM	6/3/21 5:00 PM
30	Ground Validation of Properties	244 days	15/7/20 8:00 AM	15/3/21 5:00 PM
31	**Post Survey Activities**	**248 days**	**25/7/20 8:00 ...**	**29/3/21 5:00 PM**
32	Issue of Notification for Joint Verification of Ownership	239 days	25/7/20 8:00 AM	20/3/21 5:00 PM
33	Property ownership Adjudication	236 days	30/7/20 8:00 AM	22/3/21 5:00 PM
34	Issue of Notification to provide results of Adjudication	237 days	1/8/20 8:00 AM	25/3/21 5:00 PM
35	Resoution Post Survey Objections	235 days	6/8/20 8:00 AM	28/3/21 5:00 PM
36	Post objection finalization of land parcel Maps	235 days	7/8/20 8:00 AM	29/3/21 5:00 PM
37	**Delivery of Final Ouputs**	**234 days**	**10/8/20 8:00 ...**	**31/3/21 5:00 PM**
38	OrthoRectified Images (ORI)	234 days	10/8/20 8:00 AM	31/3/21 5:00 PM
39	GIS Database	234 days	10/8/20 8:00 AM	31/3/21 5:00 PM
40	Digital Elevation Model	234 days	10/8/20 8:00 AM	31/3/21 5:00 PM
41	Property Card Data (RoR)	234 days	10/8/20 8:00 AM	31/3/21 5:00 PM
42	Hardcopies Maps (4 set per village)	234 days	10/8/20 8:00 AM	31/3/21 5:00 PM
43	**Training & Capacity Building**	**259 days**	**15/6/20 8:00 ...**	**28/2/21 5:00 PM**
44	Phase I	200 days	15/6/20 8:00 AM	31/12/20 5:00 PM
45	Phase II	234 days	10/7/20 8:00 AM	28/2/21 5:00 PM

Annexure VII: SOP prepared for Drone Survey by Karnal District, Haryana



Step-1

किसी भी गांव / Estate को लाल डोरा मुक्त करना है। उसके लिए सबसे पहले हमें उस गांव की मशावी तथा शिजरा Survey of India को Scanning करने के लिए सौंपना है, ताकि Survey of India उसे स्कैन कर सके। इस बात का ध्यान रखे कि Scaning करवाने से पहले हमें लाल डोरे की सीमा तक के ततीमाजात जो हारट्रौन द्वारा हमें सफेद मशावी सौंपी गई थी उस पर काटे जा चुके है।



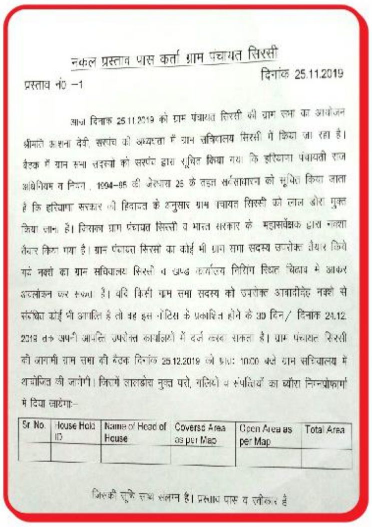
Step-2

सर्वेरी पत्थर

सेहदा

Survey of India इस्तेमाल के पत्थरों यानि मुस्ततील मौकों की सहायता से संबधित गाँव की बाउंडरी को कायम करेगें तथा अपने Cordinates स्थापित करेगें जो Cordinates Survey of India द्वारा दिए गये है उनको राजस्व विभाग के कर्मचारियों द्वारा सर्वेरी पत्थरों की सहायता से पैमाईश करके मिलान करना है ताकि उनमें कोई अंतर ना रहे तथा उनकी जांच पड़ताल सुनिश्चित हो सके। Cordinates जांच पड़ताल होने उपरान्त Survey of India विभाग के कर्मचारी लाल डोरा को कायम करेगें तथा फिरनी को भी कायम करेगें। अपनी सन्तुष्टि के लिए राजस्व विभाग को भी पैमाईश करके लाल डोरा तथा फिरनी को कायम कर लेना है तथा दोनों विभागों द्वारा कायम किए गए मौका मिलान होने पर आगामी कार्यवाही अमल में लाई जाएेगी।

Step-3



नकल प्रस्ताव पास कर्ता ग्राम पंचायत सिरसी

प्रस्ताव नं0 –1

दिनांक 25.11.2019

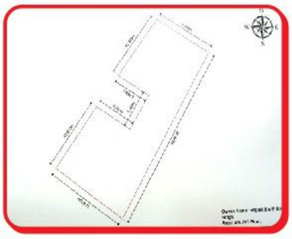
आज दिनांक 25.11.2019 को ग्राम पंचायत सिरसी की ग्राम सभा का आयोजन श्रीमति अशना देवी, सरपंच की अध्यक्षता में ग्राम सचिवालय सिरसी में किया जा रहा है। बैठक में ग्राम सभा सदस्यों को सरपंच द्वारा सूचित किया गया कि हरियाणा पंचायती राज अधिनियम व नियम, 1994–95 की जेरधारा 26 के तहत सर्वसाधारण को सूचित किया जाता है कि हरियाणा सरकार की हिदायत के अनुसार ग्राम पंचायत सिरसी को लाल डोरा मुक्त किया जाना है। जिसका ग्राम पंचायत सिरसी व भारत सरकार के महासर्वेक्षक द्वारा नक्शा तैयार किया गया है। ग्राम पंचायत सिरसी का कोई भी ग्राम सभा सदस्य उपरोक्त तैयार किये गये नक्शे का ग्राम सचिवालय सिरसी व खण्ड कार्यालय निसिंग स्थित चिढाव मे आकर अवलोकन कर सकता है। यदि किसी ग्राम सभा सदस्य को उपरोक्त आबादीदेह नक्शे से संबंधित कोई भी आपत्ति है तो वह इस नोटिस के प्रकाशित होने के 30 दिन/ दिनांक 24.12.2019 तक अपनी आपत्ति उपरोक्त कार्यालयों में दर्ज करवा सकता है। ग्राम पंचायत सिरसी की आगामी ग्राम सभा की बैठक दिनांक 25.12.2019 को प्रातः 10:00 बजे ग्राम सचिवालय में आयोजित की जायेगी। जिसमें लालडोरा मुक्त घरो, गलियो व संपत्तियों का ब्यौरा निम्नप्रोफार्मा में दिया जायेगा:–

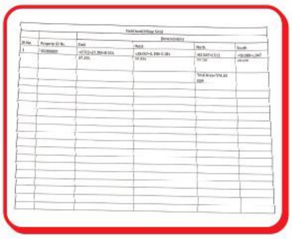
Sr No.	House Hold ID	Name of Head of House	Coverd Area as per Map	Open Area as per Map	Total Area

जिसकी सूची साथ संलग्न है। प्रस्ताव पास व स्वीकार है

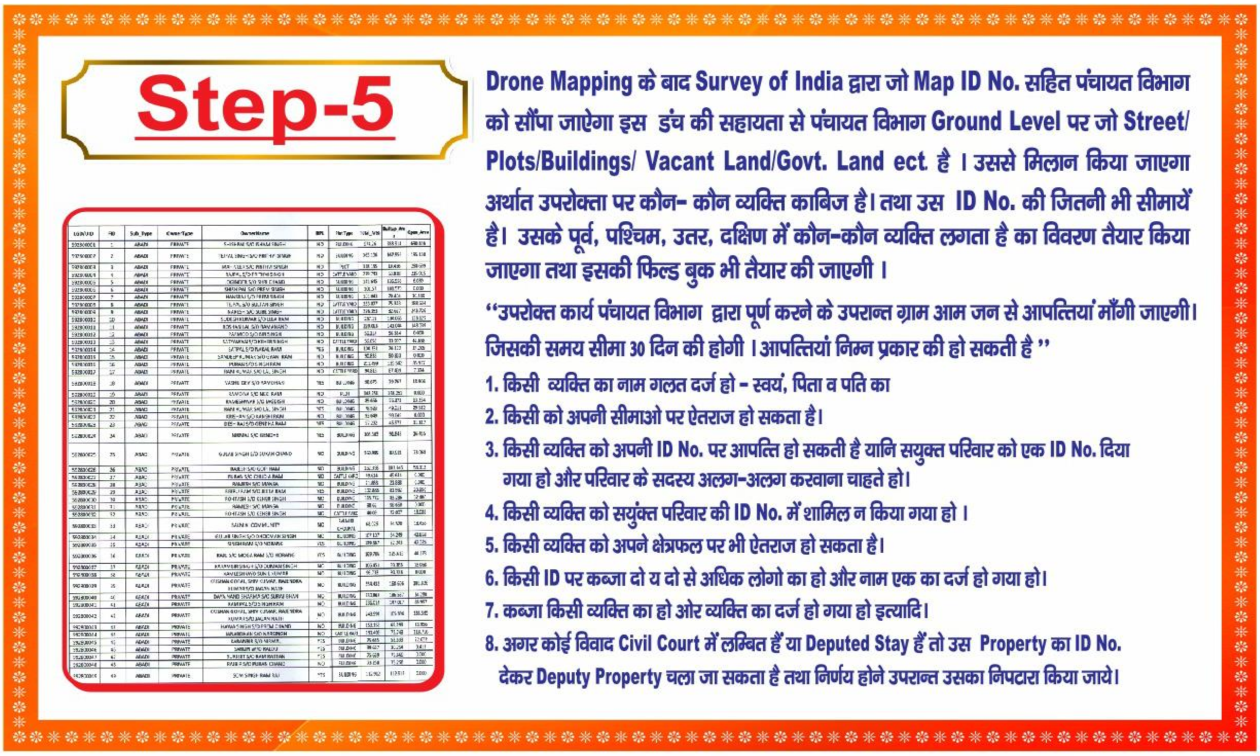
पंचायत विभाग द्वारा पंचायती राज एक्ट 1994-95 की धारा 26 के अधीन दी हुई शक्तियों का प्रयोग करके अन्दर आबादी के नक्शों को तैयार करने का प्रस्ताव पास किया जाएगा।

Step-4





Survey of India द्वारा Drone Flying करके अन्दर आबादी के Street/Plots/Buildings/Vacant Land/ Govt.Land etc. की मैपिंग की जाएगी तथा इसके लिए पंचायती विभाग द्वारा सफैदी लगाने का कार्य किया जाएगा। Survey of India विभाग द्वारा Drone Mapping करने उपरान्त जो Property Identified हुई है । उसके कोड नम्बर,नक्शा व फिल्ड बुक प्रथम चरण के लिए दिये जाऐगें । Objection आने से पहले का समय ।

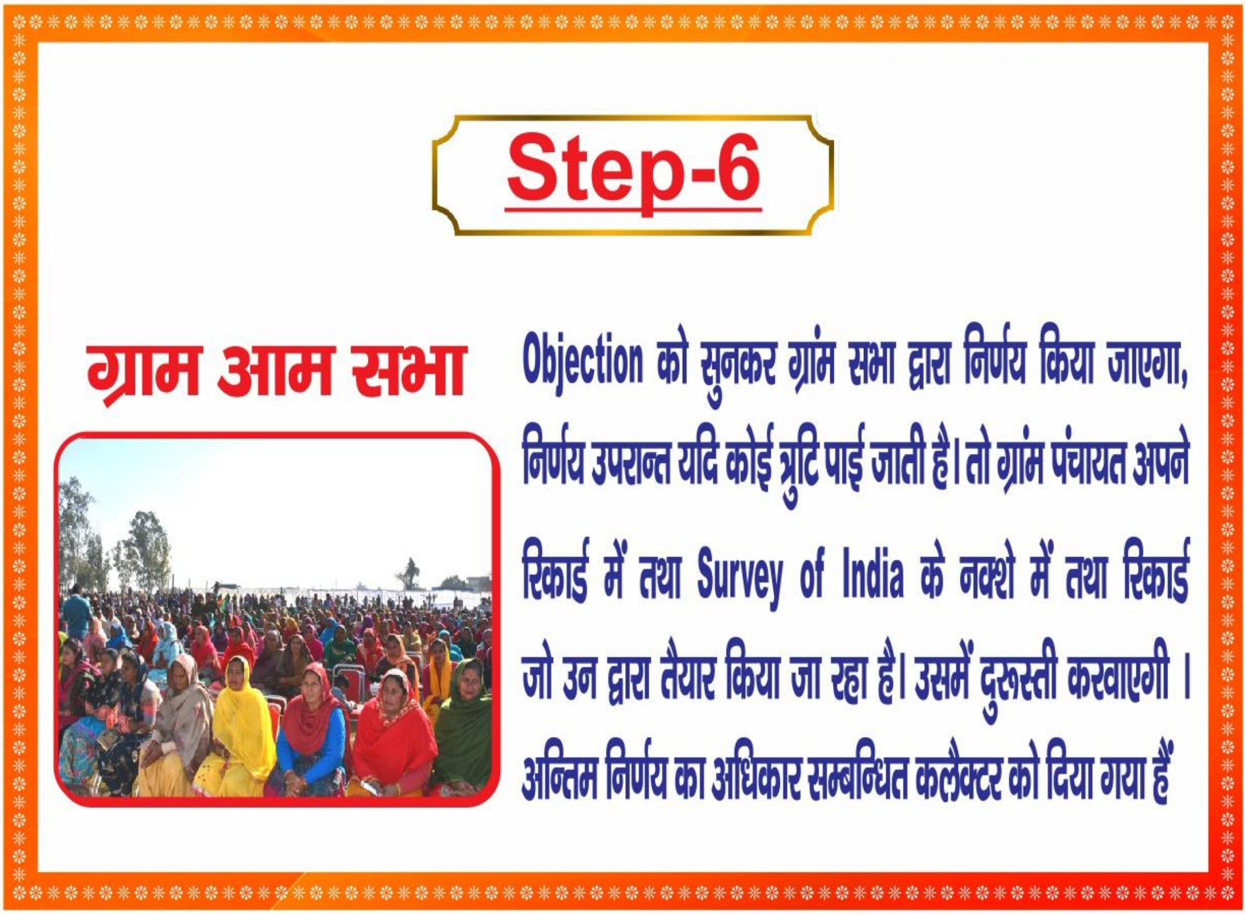


Step-5

Drone Mapping के बाद Survey of India द्वारा जो Map ID No. सहित पंचायत विभाग को सौंपा जाऐगा इस डंच की सहायता से पंचायत विभाग Ground Level पर जो Street/ Plots/Buildings/ Vacant Land/Govt. Land ect. है । उससे मिलान किया जाएगा अर्थात उपरोक्ता पर कौन- कौन व्यक्ति काबिज है। तथा उस ID No. की जितनी भी सीमायें है। उसके पूर्व, पश्चिम, उतर, दक्षिण में कौन-कौन व्यक्ति लगता है का विवरण तैयार किया जाएगा तथा इसकी फिल्ड बुक भी तैयार की जाएगी ।

"उपरोक्त कार्य पंचायत विभाग द्वारा पूर्ण करने के उपरान्त ग्राम आम जन से आपत्तियां माँगी जाएगी। जिसकी समय सीमा 30 दिन की होगी । आपत्तियां निम्न प्रकार की हो सकती है"

1. किसी व्यक्ति का नाम गलत दर्ज हो - स्वयं, पिता व पति का
2. किसी को अपनी सीमाओ पर ऐतराज हो सकता है।
3. किसी व्यक्ति को अपनी ID No. पर आपत्ति हो सकती है यानि सयुक्त परिवार को एक ID No. दिया गया हो और परिवार के सदस्य अलग-अलग करवाना चाहते हो।
4. किसी व्यक्ति को सयुंक्त परिवार की ID No. में शामिल न किया गया हो ।
5. किसी व्यक्ति को अपने क्षेत्रफल पर भी ऐतराज हो सकता है।
6. किसी ID पर कब्जा दो य दो से अधिक लोगो का हो और नाम एक का दर्ज हो गया हो।
7. कब्जा किसी व्यक्ति का हो ओर व्यक्ति का दर्ज हो गया हो इत्यादि।
8. अगर कोई विवाद Civil Court में लम्बित हैं या Deputed Stay हैं तो उस Property का ID No. देकर Deputy Property चला जा सकता है तथा निर्णय होने उपरान्त उसका निपटारा किया जाये।

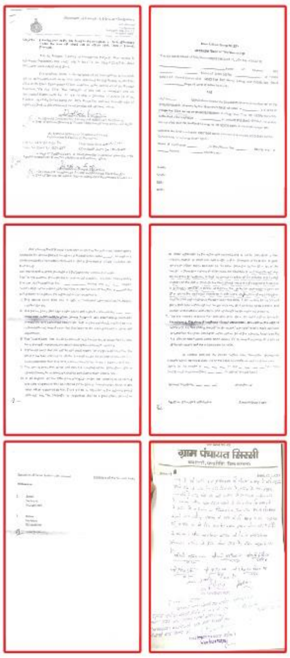


Step-6

ग्राम आम सभा

Objection को सुनकर ग्रांम सभा द्वारा निर्णय किया जाएगा, निर्णय उपरान्त यदि कोई त्रुटि पाई जाती है। तो ग्रांम पंचायत अपने रिकार्ड में तथा Survey of India के नक्शे में तथा रिकार्ड जो उन द्वारा तैयार किया जा रहा है। उसमें दुरुस्ती करवाएगी । अन्तिम निर्णय का अधिकार सम्बन्धित कलैक्टर को दिया गया हैं

Step-7



Objection का निपटारा होने के बाद पंचायत विभाग संबंधित लोगों के नाम Certifcate/ Deed of title/ Ownership करवाने के लिए पंचायत विभाग के माध्यम से प्रस्ताव Finanacial Commissioner, Revenue & Additional Cheif Secretary to Govt. of Haryana, Revenue & Disaster Management Deptt. Chandigarh को अनुमोदन के लिए भेजा जाएगा। उनके आदेश प्राप्त होने के उपरान्त पंचायत विभाग प्रस्ताव पास करके प्रस्ताव की सलंगन करके तथा जो रिकाई फाईनल हुआ है, उसके अनुसार संबंधित पक्षों के Certificate/ Deed of Title/ Ownership सम्बन्धित तहसील/ उपतहसील में रजिस्टर्ड करवाऐगें। डीड रजिस्टर्ड करवाने के लिए जो पंचायत विभाग द्वारा अधिकृत होगा वही डीड रजिस्टर्ड करवा सकता है।

Step-8

जो लाल डोरे का Survey of India तथा पंचायत विभाग द्वारा तैयार किया गया है उसे पूर्ण होने के उपरान्त पंचायत विभाग द्वारा Maintain किया जाएगा तथा आगे जो भी फेर-बदल होगा उसका रिकार्ड भी Update पंचायत विभाग अपने स्तर पर करेगा।

Annexure VIII: Monthly Progress Report Format

1. STATES

SVAMITVA SCHEME

MONTHLY PROGRESS REPORT

State: ☐

Month: ☐ **Dated:** ____________

S.no	Activity	Status	Remarks *(if any)*
1.	No. of villages Property Cards Prepared		
2	No. of villages where Property Cards distributed till date		
3	No. of Property Owner received Property Cards till date		

4. Monthly Event *(if any).*

Date: ……………. **Significance of Date**: ………………………………………………

S.no	No. of Villages Property Card distributed	No. of Property Owner received Property Cards

5. Property Cards Distribution status (*Summary Report)*

S.no	Date	No. of Villages Property Card distributed	No. of Property Owner received Property Cards	No. of disputed Property Cards	No. of Properties in Civil Cases

6. Is Property tax collected in State *(if Yes)*. **Please provide details**

7. Any Achievement/ Success Story/ News Article

8. Bank loans availed *(if any)*

S.no	Village Name	Nature of Loan (Housing / Business)	Amount of Loan

(Signature with Stamp)

2. SURVEY OF INDIA

SVAMITVA SCHEME

MONTHLY PROGRESS REPORT – SURVEY OF INDIA

Month: ☐ **Dated:** ____

S.no	Activity	Status	Remarks *(if any)*
1.	No. of villages drone flying Completed		
2	No. of villages Feature extraction completed		
3	No. of villages Map1 generated and handed over to States for correction and attribute linking		
4	No. of villages Map2 generated after making corrections		
5	No. of Villages, maps provided for inquiry process/objection		
6	Final maps generated		
7.	No. of villages Spatial/ GIS/ DEM/ DSM data handed over/shared with Ministry for integration with Ministry's Spatial Application Gram Manchitra		

8. Drone Team Deployment

S.no	State	Drone Team Deployed	No. of new Teams added in the month	No. of Non-functional drones

9. CORS Status

S.no	State	Site Selected and Recce done	Monumentation completed	Stations Functional

10.CORS Status

S.no	State	No. of officials from Revenue/ Panchayati Raj department trained in this Month	Total officials from Revenue/ Panchayati Raj department trained till now

11. MoU signed with any new States *(if Yes)*. **Please provide details and share signed copy of MoU**

12. Adoption status of Survey of India Applications

s.no	Application	States using Applications
1	**SARATHI**	
2	**SAHYOG**	

13. Any other Achievement/ Success Story

(Signature with Stamp)

Annexure IX: Checklist for different Stakeholders

PRE -SURVEY ACTIVITIES CHECKLIST

1. GRAM PANCHAYAT

S.No.	Activity	Done (Yes/No)	Date	Remarks
1	Is Gram Sabha about awareness of SVAMITVA Scheme and various survey activities held?			
2	Did women/ other vulnerable section of Society participate in Gram Sabha?			
3	IEC activities conducted in the Gram panchayat			
4	Is Drone survey schedule notified and published in Gram Panchayat?			
4	Is sufficient chunna powder available for demarcation of boundaries?			
5	Does the demarcation of boundaries done in presence of Sarpanch and other residents?			
6	Is the public and Government property demarcated ?			
7	Are disputes during the chunna marking resolved. *If pending specify the count in Remarks column*			

2. Patwari/ Revenue officer

S.No.	Activity	Done (Yes/No)	Date	Remarks
1	Is notification issued about different schedules of drone survey?			
2	Is munadi/ procalmation about drone survey done?			
3	Is the demarcation of boundary of abadi land/ lal dora done based on existing records?			
4	Is all the properties private/public/government demarcated with chunna powder?			
5	Is the attendance of survey of India officials, Gram panchayat residents, sarpanch and other concerned officials team ensured?			

3. Tehsil level officer / Block Development Officer

S.No.	Activity	Done (Yes/No)	Date	Remarks
1	Is the drone survey notification published in Gram panchayat?			
2	Is the schedule about survey shared with survey of India, patwari and other concerned officials?			
3	Has Survey of India obtained all required permissions for survey?			

4	Is the local Police Station informed about drone survey schedule?			
5	Is the attribute data of the Property owners collected?			
6	All concerned officials of Revenue Department are informed about the survey date			

4. Survey of India Team

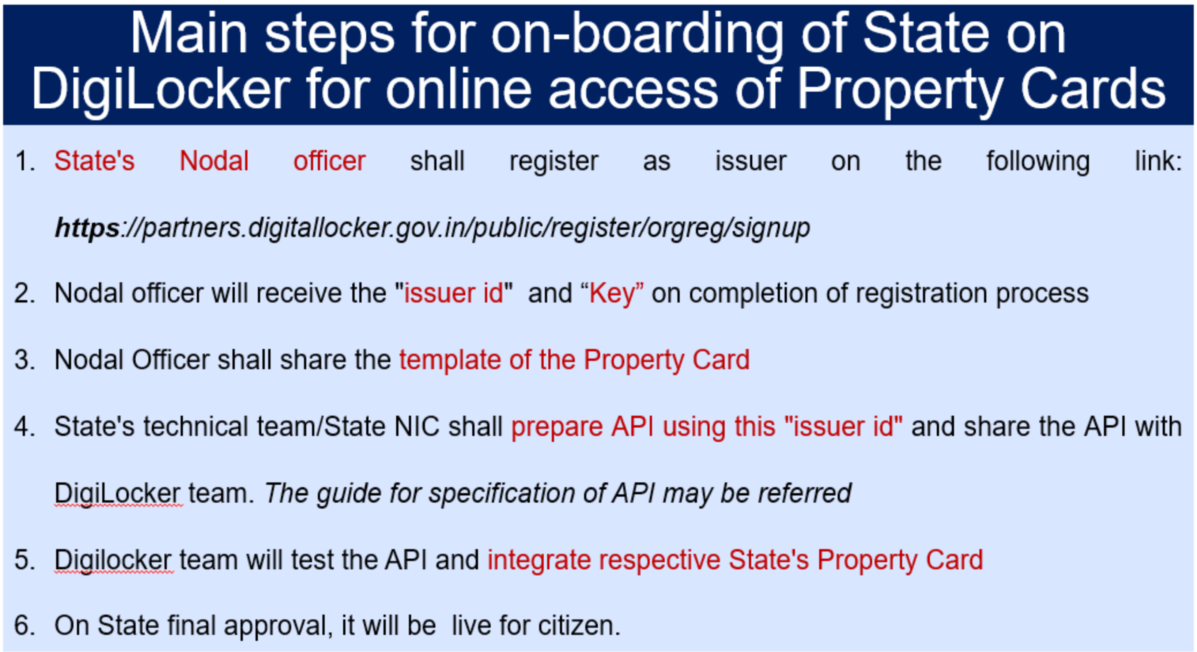
S.No.	Activity	Done (Yes/No)	Date	Remarks
1	Is the flying and other requisite permissions obtained?			
2	Received list of lat-long from Revenue department?			
3	Is drone survey schedule received ?			
4	All logistics arrangement for Drone survey done?			
5	Training manpower/ team available for survey?			
6	Is drone functional and available for survey on said date?			
7	GCP established?			
8	Received chunna marked extent of abadi area?			
9	All properties (Private/Public/ Government) are clearly chunna marked?			

Annexure X: States Rules/ Acts Amended

	State	Panchayat/ Revenue Act Amended
1	Haryana	Haryana Panchayati Raj Act, 1994, Section 26 Rule 14 of Haryana Panchayati Raj Rules 1995
2	Karnataka	Karnataka land Revenue Act 1964 and Karnataka land Revenue Rules 1966
3	Madhya Pradesh	Madhya Pradesh Land Revenue Code,1959(Amended 2018) – Sec-107(1) B
4	Maharashtra	Maharashtra Land Revenue Code 1966 -Sec 129.
5	Uttar Pradesh	Uttar Pradesh Land Revenue Code, 2006 (Act number 8-year 2012) -Section 43(2)
6	Uttarakhand	U P Land Revenue Act 1901Sec 53,54

Different States have different nomenclature for the Property Cards viz. '***Title deed***' in Haryana, '***Rural Property Ownership Record (RPOR)***' in Karnataka, '***Adhikar Abhilekh***' in Madhya Pradesh, '***Sannad***' in Maharashtra, '***Gharauni***' in Uttar Pradesh and '***Svamitva Abhilekh***' in Uttarakhand.

Annexure XI: Integration of Property Card with DigiLocker



Main steps for on-boarding of State on DigiLocker for online access of Property Cards

1. State's Nodal officer shall register as issuer on the following link: ***https***://*partners.digitallocker.gov.in/public/register/orgreg/signup*
2. Nodal officer will receive the "issuer id" and “Key” on completion of registration process
3. Nodal Officer shall share the template of the Property Card
4. State's technical team/State NIC shall prepare API using this "issuer id" and share the API with DigiLocker team. *The guide for specification of API may be referred*
5. Digilocker team will test the API and integrate respective State's Property Card
6. On State final approval, it will be live for citizen.

Panchayati Raj

MINISTRY OF PANCHAYATI RAJ
GOVERNMENT OF INDIA