

MEMORANDUM OF UNDERSTANDING (MOU)

Between

SURVEY OF INDIA, GOVT OF INDIA

And

GOVERNMENT OF TELANGANA

For

FOR DRONE BASED LARGE-SCALE MAPPING OF RURAL INHABITED
AREAS IN THE STATE OF TELANGANA

Signed on this day...^{19th}.....of April 2022



निदेशक / Director
आ.प्र. एवं तेलंगाना आ.केंद्र/AP & TGDC
भारतीय सर्वेक्षण विभाग / Survey of India
हैदराबाद/Hyderabad

3.7
Secretary to Government
Panchayat Raj & Rural Development Department
Telangana Secretariat, Hyderabad - 500 022

Memorandum of Understanding between Government of Telangana
and Survey of India (Sol), Government of India

The **Memorandum of Understanding** is made and entered into on the 19th day of April month of the year 2022

Between

The **President of India**, acting through the Surveyor General of India, Sol, Ministry of Science and Technology, Govt of India having Office at Hathibarkala Estate, Dehradun-248001; hereinafter referred to as Survey of India (which expression shall, unless excluded by or repugnant to the context, be deemed to include his successors in Office and assignee) of the **First Part**.

And

The **Governor of Telangana** acting through Panchayati Raj & Rural Development Department, 5th Floor, B-Block, B.R.K.Bhavan, Telangana State, Secretariat, Near Tank Bund, Hyderabad, Telangana-500063 referred to as Government of Telangana (which expression shall, unless excluded by or repugnant to the context, be deemed to include his successors in Office and assignee) of the **Second Part**.


WHEREAS the Survey of India (SOI) is the National Mapping Agency engaged in Surveying and Mapping of whole country and publishing topographical and general-purpose maps in analogue and digital form.

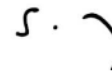
AND WHEREAS Government of Telangana has approved to undertake the PoC of 5 villages as per SVAMITVA scheme for Drone mapping of Rural abadi area (which is appx 5-6% of the area of the revenue village) for which no previous revenue records exists.

1. INTRODUCTION

In Compliance of this MoU, PoC of 5 villages for Drone mapping on 1:500 scale of the rural abadi land is to be done. The Govt of Telengana will identify the 5 villages for PoC and inform to SOI. The Survey is to be carried out using Professional Survey Grade UAV/Drone. The Drone Flying and processing including generation of digital Geospatial data will be done by Survey of India as per SVAMITVA scheme guidelines.

From Government of Telangana, the Nodal Department for this PoC project is Panchayati Raj & Rural Development Department.


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2. SCOPE OF THE WORK

- 2.1. Identification of 5 villages and inform to SOI by Notification for Drone Survey in rural abadi land (5-6% of the area of the revenue village) with no existing Revenue/Cadastral records by State Govt.
- 2.2. Acquisition of Aerial images using Professional survey grade drone/ UAVs at 5cm Ground Sample Distance (GSD) or better and Drone data Processing by Survey of India and generation of ORI.
- 2.3. Extraction of 2D features and generation of GIS data as per SVAMITVA Scheme guidelines.
- 2.4. Attribute linkage of all attribute data provided by State Govt. as per jointly finalized scheme by State Govt. & Sol. Attribute data preferably be provided in digital form for integration.
- 2.5. Numbering of properties will be entered as per numbering system provided by the State government.
- 2.6. Ownership data collection and Ground validation of property ownership boundaries will be done by State Government of Telangana.
- 2.7. Ground-Truthing and validation of topographical features shall be carried out by Sol
- 2.8. Generation of final GIS data & Land Parcel Maps will be prepared by Sol in suitable soft copy and printing formats.
- 2.9. Training of State Government technical staff at NIGST, Survey of India as per requirement of State Govt, related to SVAMITVA work only.


2.10 Study Area:

PoC of 5 villages restricted to rural abadi land (5-6% of the area of the revenue village) with no existing Revenue/Cadastral records shall be carried out.

- 2.11 **Ownership of Data:** The ORI and data generated under this MOU shall be jointly owned by the Ministry of Panchayati Raj, the Survey of India, Government of India and Govt. of Telangana.


3 METHODOLOGY

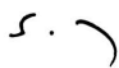
- 3.1 All clearances for drone flying will be taken by Sol. [Responsibility: Survey of India]


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- 3.2 Horizontal and Vertical Ground Control Points
Identification, Establishment, Densification and Utilisation of Ground Control Points (GCPs), Existing Ground Control Point, library points established by Survey of India/ State Govt of Telangana
- 3.3 Government of Telangana will organise the Gram Sabha to intimate the schedule of the survey and to sensitize the villagers about the project work and its intended benefits. *[Responsibility: State Government]*
- 3.4 Extent of the rural abadi land area with no existing Revenue/Cadastral records for drone-based mapping will be provided in digital form or with co-ordinates or as .kml file for mission planning for drone flying. *[Responsibility: State Government]*.
- 3.5 High Resolution Digital Aerial Images using professional Survey Grade Unmanned Aerial Vehicle /Drone: Acquisition of Aerial images using drone shall be carried out by the Sol for the extent of area given in Sl.3.4. *[Responsibility: Government of Telangana and Survey of India]*
- 3.6 Drone data Processing, ORI generation and feature extraction shall be done by SOL. *[Responsibility Survey of India]*
- 3.7 2D Feature Extraction (FE)**
- 3.7.1 The Ortho Rectified Image (ORI) shall be used as base image layer to extract the topographical features and properties parcels as per jointly finalized schema by State Govt & Sol. *[Responsibility: Survey of India]*
- 3.8 **Attributes data**
- 3.8.1 Attributes data shall be provided by Telangana State Government as per feature/wish list. 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 respective State Government of Telangana. *[Responsibility: State Government]*
- 3.8.2 The attributes collected/provided (as in point 3.8.1) shall then be linked with their respective features, thereby creating a digital spatial library of all the features and their respective information.


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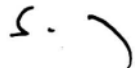
- 3.9 Boundaries of properties and numbering of properties/structures within village abadi area will be as per numbering system provided by Government of Telangana. [Responsibility: Survey of India]
- 3.10 Generation of Land Parcel Maps (LPM) in suitable soft copy formats and in printing formats. [Responsibility: Survey of India]
- 3.11 Ownership data collection and Ground validation of property ownership boundaries will be done by State Government of Telangana.
- 3.11.1 Ground validation of topographical features as derived from ORI shall be carried out by Sol if required. [Responsibility: Survey of India]
- 3.11.2 Inquiry process for finalizing the objections shall be carried out by State Government of Telangana [Responsibility: State Government]

4 DELIVERABLES

Following shall be output of the entire project covering entire consolidated list:

- 4.2 Accurate geo-referenced GIS data based on National Spatial reference framework of the country of the 5 villages.
- 4.3 Land Parcel Map(LPM)on 1:500 Scale (hard Copy) with ± 10 cm Horizontal accuracy (Plain areas) of rural abadi land (5-6% of the area of the revenue village) with no existing Revenue/Cadastral records.
- 4.4 DEM of ± 20 cm vertical accuracy for the rural abadi area of 5 villages.
- 4.5 Hard copy maps on 1:500 scale, 04 No's each for rural abadi land (5-6% of the area of the revenue village) with no existing Revenue/Cadastral records on good quality 90 GSM paper along-with .pdf copy for future printing purposes.
- 4.6 Training courses for technical staff of Government of Telangana at different levels in NIGST, Hyderabad.


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5. ROLES AND RESPONSIBILITIES

5.1 Survey of India (Sol)

- a. Project shall be executed in Survey of India premises under close supervision of Survey of India. Work space to the 3rd party or modernization of available space in terms of computers/peripherals/servers/data center shall be provided or looked after by Survey of India.
- b. Activities as given in para 3, (Methodology) shall be executed as per responsibility and model mentioned against each activity/sub activity.
- c. Survey of India shall be responsible for Project planning, Execution and monitoring of activities and shall adhere with the norms as laid by Government of India
- d. All clearances for drone flying, data vetting and final classification will be taken by Survey of India
- e. For outsourcing of any activity under the project, Survey of India will be responsible for preparation of RFPs/Bids, Processing of bids, Award of work, Supervision, Quality checking and Work execution as per contract agreement as per the norms laid down by Government of India.
- f. The Survey of India shall use their hardware and software and their GIS Lab for data Processing and production.
- g. No salaries and overheads will be charged by Survey of India in the estimated or final cost.

5.2 Government of State Telangana

- a. Each Drone/ Unmanned Aerial Vehicle flying team shall be accompanied by at least one employee from Revenue Department, Gram Panchayat and if necessary, one employee from Police Department.
- b. To finalize the schema for feature layer as per functional requirement in consultation with Sol.
- c. The State Government of Telangana shall be responsible for the accuracy and correctness of attributes data provided to Sol. The attributes data shall be provided by the Government of Telangana, preferably in digital format.
- d. Store (Hard Copy, digital data and GIS data), Host and update (as per requirement) the data created under the project will be the responsibility of Government of Telangana.


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- e. Finalization of the revenue records duly following the inquiry process & dispute resolution (if any) for issuance of property cards or ownership rights will be the responsibility of Government of Telangana.
- f. To complete the inquiry process & dispute resolution will be the responsibility of Government of Telangana.
- g. Updation of Property data and maps – The State Government shall be responsible for any future up-dation of Rural abadi property data.

6. MONITORING & IMPLEMENTATION COMMITTEE

- 6.1 SOI will nominate one dedicated **Nodal Officer** exclusively responsible for execution of the project in the State.
- 6.2 State government will nominate one Nodal officer for providing entire data, information to SOI and execution of other activities as mentioned in this MOU.

7 UPDATION OF PROPERTY DATA & MAPS

The State Government shall be responsible for future updation of rural abadi land of these 5 PoC villages.

The mechanism and surveying agency shall be decided by State Government for future update of Property data and maps.

8 TIME SCHEDULE

The entire project will be completed within two months of signing of MOU.

9 SERVICE LEVEL AGREEMENT:

Timelines for completing this activity would be as per the schedule of SVAMITVA Scheme fixed in approved EFC Memo of Ministry of Panchayati Raj.



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10 FINANCIAL TERMS AND CONDITIONS

A. Cost :

The total cost of the project is estimated to be Rs 6000/- per village abadi area - rural abadi land (5-6% of the area of the revenue village) with no existing Revenue/Cadastral records. Both the parties understand and agree that the cost of the project, worked out on the basis of the actuals will be calculated and charged after the completion of the project.

As per the guidelines of SVAMITVA Scheme issued by Ministry of Panchayati Raj, the cost of following components would be borne by Ministry of Panchayati Raj;

NOTE: Additional costs due to enhancement of the scope of drone based large scale mapping work component under the scheme would be charged from MoPR.

B. Release of Payment

Payment to above mentioned component would be released as per Guidelines of SVAMITVA Scheme issued by Ministry of Panchayati Raj

Release of payment of any other cost to be borne by State Government, would be defined as per mutual agreement with Sol after the signing of MoU

11 OTHER ASPECTS OF MOU

11.1 Arbitration

In the event of any dispute or difference relating to the interpretation and application of provisions of this MoU, such dispute or difference shall be referred by either Party for Arbitration to the Sole Arbitrator i.e. The Secretary to the Govt, of India Ministry of Panchayati Raj. The Arbitration and Conciliation Act 1996 and the Arbitration and Conciliation Act 2015 shall not be applicable to arbitration under this clause. The Award of arbitrator shall be binding upon the Parties to the dispute, provided, however, any party aggrieved by such Award may make a further reference for setting aside or revision of the Award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Govt, of India. Upon such reference, the dispute shall be decided by the Law Secretary or the Special Secretary/Addl. Secretary, when so authorized by the Law Secretary, whose decision shall bind the parties finally and conclusively. The Party to the Dispute will share equally the cost of Arbitration as intimated by the Arbitrator.

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भारतीय सर्वेक्षण विभाग
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11.2 Indemnity

Each party shall indemnify and hold harmless the other party and its trustees, officers, employees from and against any claims, actions, damages, expenses (including reasonable fees and costs), liabilities and costs arising from or relating to the services of either party under this Agreement.

11.3 Relationship - Principal to Principal

All dealings between Sol and Government of Telangana shall be as Principal to Principal. This MoU does not in any way create, establish or deem to imply the relationship of principal and Agent or partnership between Sol and Govt of Telangana.

11.4 Force Majeure

Neither party shall be held responsible for non-fulfillment of its respective obligations under this MoU to the exigency of one or more of the force majeure events lying beyond the responsible control of affected Party, such as but not limited to, Acts of God, War, Flood, Earthquakes, Epidemics, Riots, Civil commodities etc. provided on the occurrence and cessation of any such events, the party affected thereby shall send a notice in writing to this effect to the other party immediately after, but not later than one month of such occurrence and/or cessation. The period between the occurrences and cessation of such events will be excluded while calculating the period during which the party has to perform its obligations under this MoU. If the force majeure conditions continue beyond six months, the parties shall then mutually decide about the future course of action.

11.5 Governing Law and Jurisdiction

This MoU shall be governed by and constructed in accordance with Indian laws.

IN WITNESS WHEREOF the Parties hereto have duly executed this MoU as on date above written.

Government of Telangana

By signing this MoU, I also confirm that I am authorized to sign on behalf of Government of Telangana

Signature:

Name:

Title: **Secretary Panchayat Raj & Rural Development Department, Govt, of Telangana, Hyderabad**

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निदेशक / Director
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Survey of India

By signing this MoU, I also confirm that I am authorized to sign on behalf of Survey of India

Signature:



Name:

(S. V. S. NATH)

Title: Director

Andhra Pradesh &
Telangana GDC, Hyderabad

Date:

Date:

19.4.2022

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