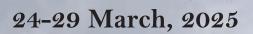


Government of India Ministry of Panchayati Raj

ITEC-EXECUTIVE COURSE ON

INTERNATIONAL WORKSHOP ON LAND GOVERNANCE



Cross Learning Platform | Global Participation | Multi Disciplinary Forum | Trainings | Exhibition | Field Visits









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Agenda of Workshop/ Training Program



A. Introduction

The Cross-Learning Workshop on Modernizing Land Governance aims to bring together a diverse group of stakeholders, including officials from national and foreign government, technology experts, and representatives from various regions, to collaboratively explore innovative approaches for addressing land governance challenges. By facilitating mutual learning, the workshop seeks to promote the exchange of best practices, address common obstacles, and foster collective solutions for advancing land governance worldwide.

B. Rationale of the Workshop

Land is an essential resource for most economic activities aimed at creating economic growth in the world. The management of land resources, therefore, is considered an important component of the economic policies of any country. In the absence of a legal document of land ownership and digital maps, the owner of property in rural areas is not able to leverage it as a financial asset acceptable by the banks to provide loans and other financial assistance. Then, there is inadequate rural planning due to the absence of high-resolution digital maps of land, long pending property-related disputes, and the lack of an updated land database for developmental activities.

As per a 2017 World Bank report, only 30% of the global population holds legally registered land titles¹. This workshop recognizes these universal challenges and highlights the importance of learning together to modernize land governance through technology, policy reform, and capacity building. By focusing on shared learning, the workshop seeks to equip participants with practical tools and strategies to address these challenges, emphasizing the use of modern technologies such as drones, Geographic Information Systems (GIS), and other digital solutions for land management. Furthermore, it will offer hands-on demonstrations and technical sessions on drone technology, data processing, and GIS integration for stakeholders. Furthermore, the workshop will facilitate crucial discussions on the legal and administrative framework required for the global adoption of such a program.

C. Objectives of the Workshop

Policy requirements and the underlying technology:

- 1. Mutual Knowledge Sharing: To disseminate information about the SVAMITVA Scheme, its objectives, and its impact on land governance. Facilitate the exchange of best practices, success stories, and lessons learned and understand land governance initiatives worldwide.
- 2. Technology Demonstration: To showcase the use of drones, GIS, and other advanced technologies in land survey and mapping while providing demonstrations and training on drone-based surveys and data processing techniques.
- 3. Stakeholders Engagement: To engage with the international community, government officials, and other stakeholders to discuss the benefits and challenges in Land Governance systems.
- 4. Capacity Building: To enhance the skills and knowledge of stakeholders through training sessions and workshops. To discuss the legal, administrative, technical tools necessary for the successful implementation.



D. Participating Regions:

- Africa
- Latin America
- South-East Asia

E. Mode of Training

The course is structured into 7 modules. It is a five-day training program with field visits.

Each day is structured into the following 4 modes of imparting training.

1. Classroom Study

The speaker will discuss a topic as per the program. It will be followed by a Question/ Answer and open house session.

2. Demonstration of Methodologies/ Process

A practical demonstration/ online demo of the topics as per the schedule will be given to the Participants.

3. Exhibition – Interaction with Partnering organization

Participants can interact with participating organisations and knowledge partners to better understand concepts and latest technology.

4. Evaluation

Quiz-based evaluation of the Participants

F. Modules of the training

Module 1

Modernization of Land Governance and its Impact

Module 2

Resource Mobilisation and Administration Tasks

Module 3

Pre-Survey activities for Drone-based Land Survey

Module 4

Survey and Post-Survey Activities

Module 5

Demonstration of Survey Activities Planning and tools

Module 6

Utilities of High-Resolution Drone Survey Maps and Data

Module 7

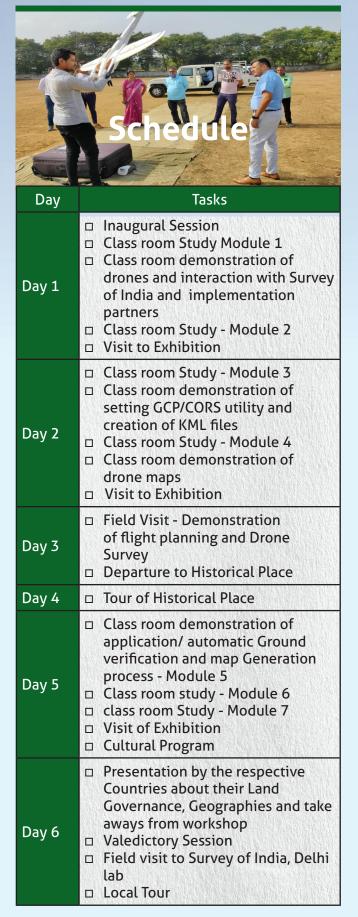
Use of Technology





G. Schedule

The tentative workshop Schedule is as follows



H. Expected Outcome

- 1. Assessing the adaptability of SVAMITVA: The workshop will act as a cross-learning platform for the participants on the SVAMITVA Scheme, detailing its objectives and its significant impact on land governance. This knowledge will be conveyed through success stories and case studies from various states, along with insights into global practices in land governance.
- 2. Exposure to Advanced Technologies: Participants will gain exposure to advanced technologies, including the use of drones, GIS, and other cutting-edge tools in land survey and mapping. The workshop will provide hands-on demonstrations and training sessions on drone-based surveys and data processing techniques.
- 3. Cross-learning with International Community: The workshop will facilitate engagement with the international community, Government officials, and other stakeholders, allowing participants to discuss the benefits and challenges associated with the SVAMITVA Scheme.
- 4. Enhancing Skills and Knowledge: Through training sessions and workshops, participants will enhance their skills and knowledge. The workshop will also provide a platform to discuss the legal, administrative, and technical tools necessary for the successful implementation of the scheme in their region.

I. Understanding SVAMITVA Scheme – Quick Notes

i. Structure and Responsibilities of Government in India: An Overview of Union and Local Governance

In India, power and responsibility are distributed across different layers of Government. As per the contribution, the responsibilities of the government are divided into three categories: **The union list** contains specific focus areas pertaining to the Central govt., and the **State list** pertains to the state govt. and **Concurrent list** contains focus areas pertaining to both central and state govt. In India's three-tier governance system, the Union and State Governments are complemented by Local Governments. Local governance in India takes place in two very distinct forms, depending on whether the locality is Urban or Rural.



The Rural Local Government, also known as the Panchayati Raj system, is a three-tier system with elected bodies at the village, block, and district levels. These bodies are also known as Panchayati Raj Institutions (PRIs).

- 1. District /Zilla panchayats
- 2. Block / Mandal / taluka panchayats
- 3. Gram panchayats

Most of the financial powers and authorities to be bestowed on local bodies are at the discretion of State legislatures. Consequently, the powers and functions vested in local bodies vary from State to State. For Panchayati Raj Institutions, an indicative list of 29 items has been given in the Eleventh Schedule of the Constitution viz. Agriculture, land improvement, education, rural housing, health and sanitation, family welfare, welfare of weaker section, etc. Rural Local Bodies are expected to play an effective role in planning and implementation of works related to 29 items.¹

ii. Challenges and Complexities of Land Governance in India

The land is a part of "State list" of subjects as per 7th Schedule of the constitution². Rural land is a subject that is governed and administered by multiple stakeholders. The State Revenue department is largely responsible for maintenance of rural land records that include agricultural land and non-agricultural land, facilitating mutation, encumbrance etc. The State Panchayati Raj department is responsible for maintaining a register of properties in its villages for the purpose of having an up-to-date record of properties and assessment of any fee/tax if applicable.

While most of the rural land in mainland India is governed by either Revenue or Panchayati Raj department; the land governance is different when it comes to certain tribal areas viz. 6th Schedule areas. The 6th schedule of the Indian constitution provides for special powers to certain tribal areas in respect of administrative, legislative, judicial, and financial functions. The 6th schedule areas of north-east India including those of Meghalaya, Assam, Mizoram, and Tripura are governed by Autonomous District Council (ADC) that directly interface with the village councils. This has a direct bearing on land governance rules in the ADC-administered zones including lack of permanent ownership of land, lack of provision of loan on property, restriction on transfer of property rights etc.

With multiplicity of land laws and related rules across various States and UTs and 6th Scheduled areas, variation in land ownership across **continuum of land rights**³ viz. informal land rights, possession, tenured rights, lease hold, registered freehold; lack of spatial/non-spatial data in respect of inhabited land, varying provisions for registration of ownership, difference in the level of integration of land records, variation in the bankability of land records etc. makes land a complex subject.

> ¹S11.pdf (mea.gov.in) ²S7.pdf (mea.gov.in) ³Framework for Evaluating Continuum of Land Rights Scenarios_English_2016.pdf (unhabitat.org)

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Inhabited land was considered unproductive due to its non-revenue nature, however its value started to grow due to increasing urbanization and infrastructure development. This also necessitated the survey of inhabited land as is done in urban areas. While some states had individually undertaken a comprehensive survey of all land, the scale of such maps was lower (1:3000 and higher). However, there was no concerted effort to survey inhabited land as it was for agricultural land mainly because of the lack of the driving force of land revenue collection. This resulted in lack of comprehensive maps of villages and lack of ownership documents with the property owners in the inhabited area.

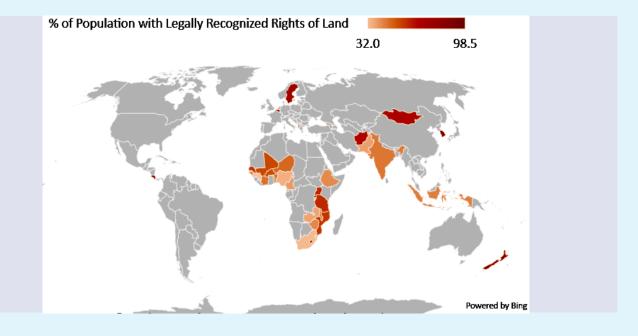
As per United Nations Report on Sustainable Development Goals on proportion of Adult Population with a legally recognized document of their Rights to Land and data reported by 34 countries, 55% of population has legally recognized document of Rights to land globally.⁴

Considering the regions; disparities are quite stark with Europe reporting 74%, Asia reporting 60%, and Africa reporting 49% of population with legally recognized proof of ownership. The highest percentage is reported by Costa Rica, Republic of Korea and New Zealand with more than 95% of population having legally recognized proof of ownership. While the lowest ownership percentage is in Nigeria, South Africa and Guinea with less than 34% of population having legally recognized proof of ownership. Among the African nations, the highest ownership percentage is reported by Rwanda (89.4%) While in Asia its Republic of Korea (97%). While India has not reported the dataset in the Global SDG framework, as per National Family Health Survey (NFHS-5), 37% of women and 53% of men own either a house

UN member States endorsed the 2030 Agenda for Sustainable Development and committed to implement the Sustainable Development Goals (SDGs). The SDGs contain land-related targets and indicators under SDGs 1, 2, 5, 11 and 15. Many national, regional and global organizations and stakeholders working in the land sector are committed to implementing the SDGs and monitoring the land-related indicators to promote responsible land governance and secure tenure rights for all. ⁵

This is important as Land is a key economic resource and its ownership is inextricably linked to access, use and control over other economic and productive resources thus, critical to achieving the SDGs. India is in the league of several Asian, African countries that lag behind the proportion of population with legally rights of land however, India has also pioneered SVAMITVA Scheme that provided legal document of ownership rural inhabited areas. This is first of its kind scheme that utilizes drone survey technology to map all the inhabited land in the country at an accuracy of 5cms with a resolution of 1:500. With a pioneering scheme, India has a vantage point to serve as a model lighthouse for other South-South Cooperation emulate the success of SVAMITVA Scheme.

⁴https://unstats.un.org/sdgs/dataportal/database
⁵https://landportal.org/book/sdgs







iii. Land Governance: A Multi-stakeholder effort

The survey of rural land involves multiple stakeholders with revenue department mobilizing the field functionaries including Block/Village level officer, Panchayati raj department involving Sarpanch, Panchayat Secretary for sensitizing property owners along with revenue officials.

Survey of India (SoI) is the nodal department responsible for conducting geospatial survey and is mandated to create high accuracy maps, update geospatial data, promote exchange of information and technology for innovation in GIS space.

Sol has been undertaking survey in the Indian geography since 250+ years and has been involved in several seminal works including the Great Trigonometrical Survey, measuring the height of the Mt. Everest, conducting geodetic survey, preparation of topographical maps of India on varying scale. Apart from these, Sol also caters to the surveying needs for all the developmental projects in the country. Numerous developmental surveying and mapping tasks have been carried out by Sol for various Central/State Govt., Central/ State PSU and other organizations. The National Map Policy (2005) has mandated Sol to prepare national topographic database, and prepare defence series as well as open series maps. Ministry of Panchayati Raj collaborated with Survey of India for undertaking Drone-based survey of Inhabited rural areas under SVAMITVA Scheme. Survey of India's work for drone survey and digitization of maps was seminal to the scheme's objectives and was enabled by the Drone Policy 2021 and New Geospatial Policy 2022 which opened-up avenues for Drone Startups and MSMEs (micro, small and medium enterprises) to contribute to the SVAMITVA Scheme in respect of drone survey and digitization of maps.

iv. Need for SVAMITVA Scheme

Considering the lack of Record of Rights (RoR) and absence of survey of inhabited areas in villages, there was a need to create maps of inhabited areas of villages for providing Record of Rights to property owners. The map of the inhabited area would provide an accurate **socio-economic profile** of the residents of the village including typology of houses, conditions of roads, sufficiency of village infrastructure etc.

This led to the conceptualization of SVAMITVA (Survey of Villages Abadi and Mapping with Improvised Technology in Village Areas) Scheme for surveying rural inhabited land utilizing the drone survey technology creating high resolution maps on a scale of 1:500.



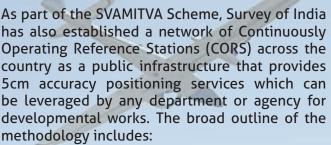
Methodology of Survey ν.

Participatory Approach

Technology Used

The methodology of survey involves an extensive and participatory approach with involvement of property owners, State Panchayati Raj Department, State Revenue Department, and Survey of India right from the beginning. The property owners are sensitized about the benefits of the scheme and approach for survey through Gram Sabhas or Village Assembly. The property demarcation is done in the presence of property owners, gram panchayat and revenue officials. Upon completion of drone survey, maps are digitized by Survey of India and shared with revenue department for ground verification. Each property parcel is individually verified for its size, ownership, share of property, etc. Thereafter, finalization of map is done by Survey of India based upon the ground verified data, upon which final claims and objections are invited for each property based on the objection period as per State Revenue/Panchayati Raj Acts. Final property cards are prepared upon the settlement of claims and objections and distributed to each property owner.

Process Followed



- Notification of villages for Survey by State i.
- ii Conduct of IEC activities by State to sensitize residents about the Scheme
- iii. Demarcation of inhabited village and property parcels
- iv. Establishment of ground control points by Survey of India
- Drone survey of inhabited area of villages v.
- vi. Creation of ortho-rectified image (ORI)
- vii. Feature extraction of ORI for marking various features like property boundaries, road network, etc.
- viii. Ground verification of maps by State and verification of ownership of property
- ix. Correction of digitized map by Survey of India with the ground verified data by State.
- Finalization of map of inhabited area and х. settlement of claims and objection on draft map through participatory approach.
- xi. Creation of final property cards and distribution to the property owner.

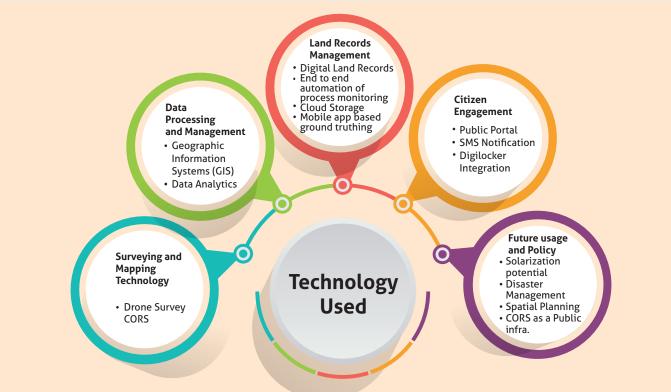


Figure 1 SVAMITVA Scheme's usage of technology



SVAMITVA Scheme has accorded states/UTs with opportunity to utilize technology to digitize the processes and implement the scheme at Speed and Scale. Survey of India, States and UTs have created online dashboard for monitoring the scheme implementation at the village level which are integrated with SVAMITVA's centralized dashboard (svamitva.nic.in). States such as Madhya Pradesh, Gujarat, Maharashtra, have developed end-to-end integrated application that is used for notification of villages, planning for drone survey, maps exchange between state and survey of India, ground verification of maps and final property card preparation. The integrated application provides transparency and efficiency in the implementation of the scheme. Madhya Pradesh has also provided facility for online creation of charge on property card through the MP Bhulekh portal and has onboarded several nationalized banks. Additionally, in order to provide property cards directly to the property owners, Digilocker facility is also provided where the property owner can download their property cards on mobile phone. Moreover, the land records once created through drone survey can be updated through the use of Rovers. States such as Maharashtra have procured rovers for its blocks/tehsils and provided training to the tehsil level officials for updating the land records. Use of technology has provided a fillip to the entire value chain of land governance.

vi. Future course

SVAMITA Scheme has far-reaching benefits

spanning beyond providing the Record of Rights and creation of maps. The high resolution maps created with unparallel horizontal and vertical accuracy along with Digital Terrain Model (DTM) and Digital Elevation Model (DEM) provide value to **Disaster Management** Department by enabling them to create disaster relief profile of villages identifying flood prone areas, inundation modelling, population impacted etc., The New and Renewable Energy Department can utilize the accurate drone image for identification of roof top solar potential based on the area and typology of houses, Panchayats are also able to identify number of properties and the associated area of the property thereby enabling them to assess applicable property tax, further streamlining own sources of revenue of the panchayats.

The high-resolution maps can also be utilized for the **spatial planning** of villages and the preparation of high-quality village plans which can further enhance development of villages. The geospatial data can be used to create **lighthouse villages** that can serve as benchmark for other villages and help in identification of potential growth centers for development. The CORS infrastructure setup as a public asset can be utilized by any department or agency for utilizing **positioning services** for preparation of detailed project reports, and other developmental work.

SVAMITVA Scheme aims for holistic development of Gram Panchayat through the empowerment of villages and their residents which will eventually make rural India Atmanirbhar





Land Transaction	Property Ownership Clarity: The issuance of property cards under the SVAMITVA scheme ensures clear ownership of land.	Increased Property Transactions: With clear titles, property transactions become more streamlined, boosting the real estate market in rural areas.	Market Value Realization: Proper documentation and ownership clarity can lead to an increase in the market value of properties.
Banking and Financial Sector	Enhanced Credit Access: Property cards can be used as collateral for loans, improving access to credit for rural landowners. This can lead to an increase in entrepreneurial and development activities.	Financial Inclusion: The scheme aids in integrating rural populations into the formal banking system, promoting financial inclusion.	3
Land Governance and Administration	Efficient Land Management: Digital records and maps aid in better land management and planning by local authorities.	Own Source of Revenue Generation: Accurate property records help in efficient tax collection, enhancing local revenue.	Transparency and Accountability: The digitization of land records promotes transparency and reduces corruption and fraudulent practices.
Land Transaction	Clear demarcation of land boundaries reduces disputes.		
Socio- Economic Development	Empowerment of Rural Population: Providing property rights empowers rural residents, especially women, enhancing their socio-economic status.	Infrastructure Development: With clear land ownership, rural areas are more likely to attract infrastructure development projects, such as roads, schools, and hospitals.	Poverty Alleviation: Access to credit and better land management practices can lead to poverty alleviation through increased agricultural productivity and entrepreneurship.
Environmental and Urban Planning	Sustainable Land Use: Accurate mapping aids in better land use planning and management, promoting sustainable practices.	Urban Expansion Management: Proper land records help in managing urban expansion and preventing unauthorized settlements.	
Disaster Management and Mitigation	Better Resource Allocation: Accurate land records help in efficient resource allocation during disaster management and rehabilitation.	risk	

Figure 2 Impact of SVAMITVA Scheme on various sectors





J. Schedule of Workshop/ Training Program

Inaugural Session			
9 am – 9:30 am	Registration		
9:30 AM - 9:35 AM	Welcome address		
9:35 AM - 9:40 AM	Opening remarks		
09:40 AM - 09: 50 AM	Introductory remarks		
9:50 AM - 10:00 AM	Inaugural speech		
10:00 AM - 10:20 AM	Keynote address		
10:20 AM - 10:40 AM	Tea/Coffee Break-Networking		
Module 1: Modernization of Land Governance and Its Impact			
10:40 AM - 11:00 AM	Brief on Land Laws/Acts and administrative system		
11:00 AM – 11:20 AM	How Drone-based Land Survey Impacted Land Administration		
11:20 AM - 11:40 AM	SVAMITVA Scheme overview + Short movie on SVAMITVA Scheme		
11:40 AM – 12 PM	Overview of drone-based land survey and its benefits		
12 noon – 12:15 pm	Interactive Session - Q&A		
12:15 PM – 1:30 PM	Lunch		
Presentations by Parti	cipating Countries		
01:30 - 03:30 PM	Presentations by the respective Countries about their Land Administration and Geographies- Governance, Systems, frameworks, best practices		
03:30 PM – 4:00 PM	Tea/Coffee Break-Networking		
Module 2: Resource M	obilisation and Administrative Tasks		
4:00 PM – 04:15 PM	 Engaging the community and conducting awareness programs prior to surveys 		
	• Steps for preparatory groundwork, including planning, Identification of Inhabited Land, logistical arrangements.		
04:15 PM – 04:25 PM	Interactive Session - Q&A		
Classroom demonstrat	tion of Drones		
4:25 PM – 4:40 PM	Demonstration of drones and various use cases. Adaptability of drones in different weather conditions		
4:40 PM – 5:05 PM	Interactive sessions with drone vendors		
5:05 PM- 5:15 PM	Quiz on sessions		
5:15 PM	Tea/ Coffee Break -Networking		



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	activities for drone-based Land Survey			
09:30 AM – 10:10 AM	Training programs and capacity-building initiatives for survey teams These are crucial for the success of the survey. This session will detail the training modules, skill enhancement programs, and capacity-building activities designed for survey teams to ensure accuracy and efficiency.			
10:10 AM – 10:20 AM	Setting up of GCPs, creation of KML files and limestone marking of Properties Brief overview of KML files, their importance, and applications in land administration Step-by-Step Guide to Creating KML Files Detailed demonstration on how to create KML files using appropriate software and tools (Google Earth, QGIS)			
Classroom demonstrat	ion of Setting of GCP and creation of KML file			
10:20 AM – 10:40 AM	Demonstration of Setting GCP/ utilisation of CORS network. Creation of KML file Best Practices to be adopted for limestone marking of Properties			
10:40 AM - 10: 50 AM	Interactive Session - Q&A			
10:50 AM – 11:15 AM	Tea/Coffee Break – Networking			
Module 4: Survey and	Post-Survey Activities			
11:15 AM - 11:45 AM	Drone-based survey Presentation of Survey Grade Drones, suitability and selection of drones based on terrain and environment			
11: 45 AM – 12:30 PM	Data Acquisition Techniques Methods and technologies used for collecting field data and Meta data, including the use of GPS, GIS, and other survey tools, Flight plan preparation based on KML files Data Processing and Validation Techniques for processing and validating collected survey data to ensure accuracy and reliability and integration with existing land records			
12:30 AM - 01:00 PM	Interactive - Q&A Session			
01:00 AM - 02:00 PM	Lunch			
Classroom demonstration of Maps				
02:00 PM – 02:40 PM	Demonstration of Ortho rectified images Intermediate drone maps Feature Extracted Maps Final Maps			
02:40 PM - 03: 00 PM	Interactive Session - Q&A			
03:00 PM- 03:10 PM	Quiz on sessions			
03:00 PM - 03:30 PM	Tea/Coffee Break – Networking			



10:00 AM - 11:30 AMDemonstration of Flight Planning and Drone Survey in a nearby village12:00 PM onwardsDeparture to visit historical places in Agra (One Day Tour)

March 27

Visit to Tourist Places Departure for Delhi in Evening

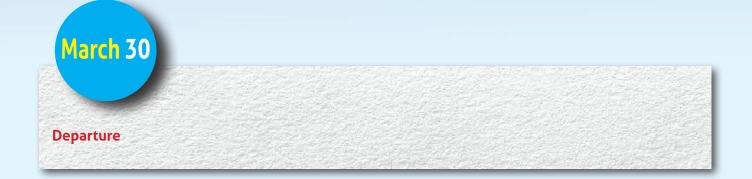
March 28

Classroom Demonstra	tion of Application-based Ground Verification and Final Map Generation			
09:30 AM - 11:00 AM	Technology demonstration for Ground verification Display of Ground verification application by the States. Discussion of use cases of technology utilized. 1. SAARA Mobile app 2.MahaSVAMITVA web-based - Maharashtra Finalization of Maps and Property Cards Correction and Publication of final maps, Methodology, Dispute Settlement process involved, regulatory requirements			
11:00 AM - 11:30 AM	Tea/Coffee Break – Networking			
Module 6: Utilities of High-Resolution Drone Survey Maps and Data				
11:30 AM – 12:30 PM	GIS integration- Use of GIS technology in creating accurate land records under the SVAMITVA scheme.			
12:30 PM - 01:00 PM	Demonstration of Thane PoC- Presenting the Proof of Concept (PoC) of SDG monitoring through the use SVAMITVA data undertaken by MoPR.			
01:00 PM - 02:00 PM	Lunch			
Module 7: Use of Technology				
02:00 PM – 02:30 PM	The use of CORS for accurate and real-time land survey and future updates using Rovers.			
02:30 PM – 03:30 PM	Importance Consideration with property Card and integration with other departments like registration, revenue courts, etc			
03:30 PM – 03: 45 PM	Q&A Session			
03:45 PM – 03:55 PM	Quiz on sessions			
03:55 PM	Tea/Coffee Break – Networking			
CULTURAL PROGRAM				

7:00 PM - 9:00 PM Cultural Program



09:00 AM – 11:15 AM	Presentations by Countries on take aways from the workshop
11:15 AM - 11:30 AM	Tea/Coffee Break – Networking
Valedictory Session	
11:30 AM - 11:45 AM	Concluding Remarks
11:45 PM - 12:00 PM	Vote of Thanks
12:00 PM onwards	Visit to Survey of India lab in Delhi and proceed for Local Tour.





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