



## Geospatial Technology

**For Prelims:** SVAMITVA Scheme, geospatial technology.

**For Mains:** Significance of SVAMITVA Scheme for Rural India.

### Why in News?

On the Occasion of the 1<sup>st</sup> Anniversary of the [Release of Geospatial Data](#), the Government said that [geospatial technology](#) along with **Drones** will survey all the over 6 lakh Indian villages under the [SVAMITVA scheme](#). Also the **pan-India 3D Maps** will be prepared for **100 Indian cities**.

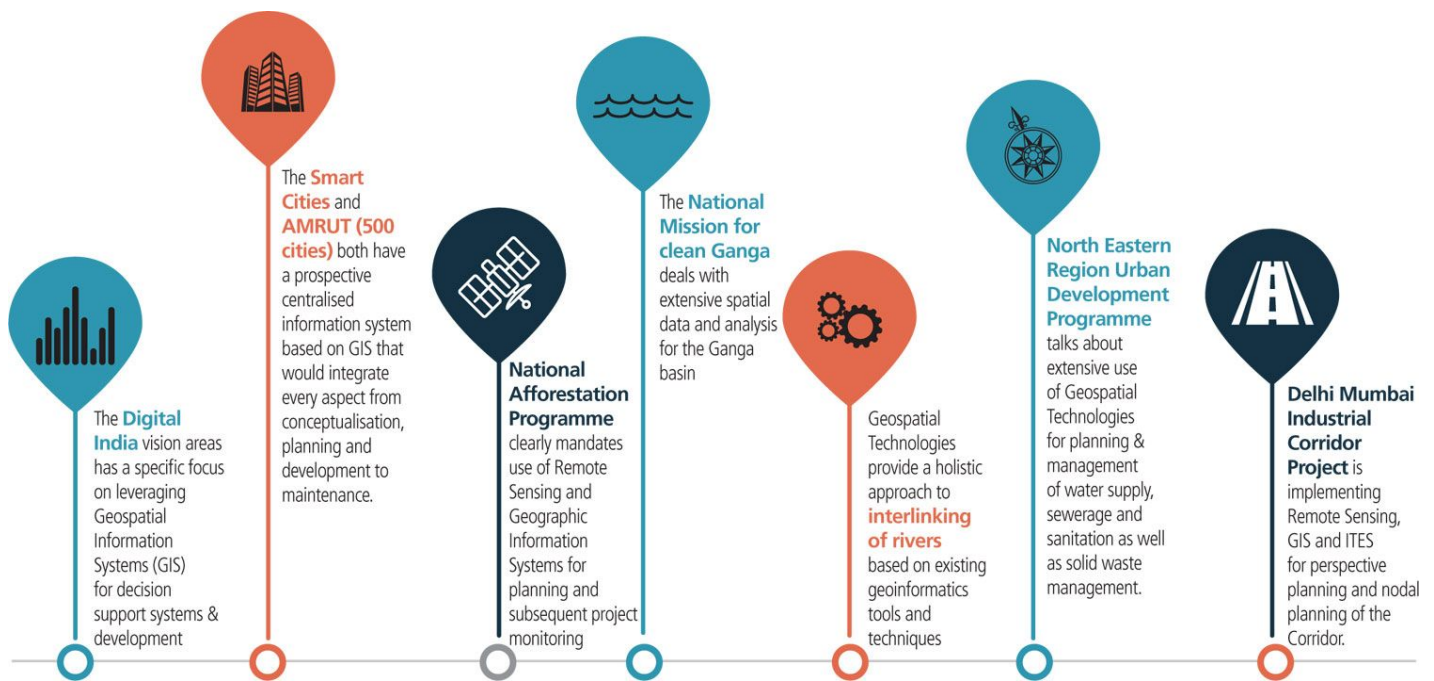
- **Geospatial Policy will be announced soon as the liberalisation of the guidelines** has yielded very positive outcomes within one year's time.
- **SVAMITVA Scheme** is a reformative step towards establishment of clear ownership of property in rural inhabited (Abadi) areas.

### What is Geospatial Technology?

- Geospatial technology **uses tools like** [GIS \(Geographic Information System\)](#), [GPS \(Global Positioning System\)](#) and [Remote Sensing](#) for geographic mapping and analysis.
- These tools **capture spatial information about objects, events and phenomena** (indexed to their geographical location on earth, geotag). The location data **may be Static or Dynamic**.
- Static location data include position of a road, an earthquake event or malnutrition among children in a particular region while dynamic location data include data related to a moving vehicle or pedestrian, the spread of an infectious disease etc.
- The technology may be used **to create intelligent maps to help identify spatial patterns in large volumes of data**.
- The technology **facilitates decision making based on the importance and priority of scarce resources**.

### What about India's Geospatial Sector?

- India has a robust ecosystem in geospatial, with the [Survey of India \(Sol\)](#), the [Indian Space Research Organisation \(ISRO\)](#), Remote Sensing Application Centres (RSACs), and the National Informatics Centre (NIC) in particular, and all ministries and departments, in general, using geospatial technology.
- In 2021, the geospatial market was **dominated by defence and intelligence** (14.05 %), urban development (12.93 %) and utilities (11 %) segments, cumulatively accounting for 37.98% of the total geospatial market.
- In 2021, the Ministry of Science and Technology released new guidelines for the Geo-Spatial Sector in India, which deregulates existing protocol and liberalises the sector to a more competitive field.



## Why is Geospatial Technology important for India?

- **A Potential Sector:** The sector has potential to grow to Rs 63,100 crore at 12.8% by the end of 2025 as per India Geospatial Artha Report 2021.
- **Employment:** Private Companies like Amazon, Zomato etc. use this technology to smoothly conduct their delivery operations which supports livelihood generation.
- **Implementation of Schemes:** The schemes like the [Gati Shakti program](#) can be smoothly implemented using geospatial technology.
- **Make in India:** Focusing on the sector allows Indian companies **to develop indigenous apps like an Indian version of google maps.**
- **Management of Land records:** Using the technology, the data related to a large number of landholdings can be appropriately tagged and digitised.
  - It will not only help better targeting but also **reduce the quantum of land disputes in courts.**
- **Crisis Management:** Technology and logistics were perfectly supported through the use of geospatial technology during the Covid-19 vaccination drive.
- **Intelligent Maps and Models:** Geospatial technology may be used to create intelligent maps and models that may be interactively queried to get the desired results in a STEM (Science Technology Engineering and Mathematics) application or may be used to advocate social investigations and policy-based research.

## What are the Challenges?

- There is **no demand for geospatial services** and products on a scale linked to India's potential and size.
  - This is **mainly due to the lack of awareness among potential users** in government and private.
- The other hurdle has been the **lack of skilled manpower** across the entire pyramid.
- The **unavailability of foundation data**, especially at high-resolution, is also a constraint.
  - Essentially, foundation data can be seen as common data tables which are shared between multiple applications or processes which are supposed to create a sturdy foundation for good service automation and management
- The **lack of clarity on data sharing and collaboration** prevents co-creation and asset maximisation.
- There are still **no ready-to-use solutions especially built** to solve the problems of India.

## Way Forward

- **Establishing a Geo-Portal and Data Cloud:** There is a need to establish a geo-portal **to make all public-funded data accessible** through data as a service model.
  - It is important **to inculcate the culture of data sharing**, collaboration and co-creation.
- **Generation of Foundation Data:** This should include the **Indian national digital Elevation Model (InDEM)**, data layers for cities, and data of natural resources.
- **Bachelor's Programme in Geospatial:** India should start a bachelor's programme in geospatial in the Indian Institutes of Technology and the National Institutes of Technology. Besides these, **there should be a dedicated geospatial university.**
  - These programmes will propel research and development efforts which are crucial for the development of technologies and solutions locally.
- **Regulation:** National organisations like **SoI and ISRO should be entrusted with the responsibility of regulation** and the projects related to the nation's security and scientific significance.
  - These organisations should not **compete with entrepreneurs for government business** as the latter remains in a disadvantageous position.
- **Finalisation of Policies:** The draft National Geospatial Policy (NGP) and the Indian Satellite Navigation Policy (SATNAV Policy) should be duly finalized to augment the sector.

**[Source: PIB](#)**

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