



NALSAR MSTL

REMOTE SENSING & GIS
LAWS

August 20, 2023

Legal & regulatory Aspects

United Nations treaties

A. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies

B. Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space

C. Convention on International Liability for Damage Caused by Space Objects

D. Convention on Registration of Objects Launched into Outer Space

E. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies

Principles adopted by the General Assembly

Resolution 41/65 of 3 December 1986

A. Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space

B. Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting

C. Principles Relating to Remote Sensing of the Earth From Outer Space

D. Principles Relevant to the Use of Nuclear Power Sources in Outer Space

E. Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries

UN GA Resolution Principles on Remote Sensing

No prior consent for imaging from space

Right of sensed states for non discriminatory access to data

Respect for legitimate rights interests of sensed states, for interests of developing countries

Cooperation and consultations

Respect for preserving environment

Respect for international law

India's Position in UN Treaties on Outer Space Activities

Outer Space Treaty	Signature : March 3, 1967 Ratification : January 18, 1982
Rescue Agreement	Accession : July 9, 1979
Liability Convention	Accession : July 9, 1979
Registration Convention	Accession : January 18, 1982
Moon Agreement	<u>Signature : January 18, 1982</u>

Remote Sensing Laws- International picture

- ✓ Approach in United States
- ✓ European practices
- ✓ Japan and other nations
- ✓ Basic issues Addressed by law
 - ✓ Licensing space operations – clearances for frequency, space debris mitigation etc.
 - ✓ Licensing and Export of satellites, ground station and encryption hardware/ software
 - ✓ National security and foreign policy provisions
 - ✓ Public policy ; free data and global sharing, Archival
 - ✓ Nondiscriminatory access
 - ✓ Disaster support
 - ✓ Data ownership
 - ✓ Others (Commercialisation of Remote sensing, Privacy Laws, IPR)

INDIAN REMOTE SENSING POLICY

- Remote Sensing Data Policy was initially introduced in 2001 and was updated in 2011.
- Developments in the global environment were so rapid that policy renewals have become necessary to keep pace with them.
- The Draft Space Based Remote Sensing Policy of India ([SpaceRS Policy -2020](#)) released for [public consultation](#) in November 2020,
- 2020 Policy states the intent of the Government of India to promote the role of Indian Industries to carry out space based remote sensing activities within and outside India;
- Enable easy access to space based remote sensing data, except for “sensitive data and information”;
- Provide a [timely and responsive regulatory environment for the commercial Indian industry](#) to establish and operate space based remote sensing systems and so on.
- While there is significant relaxation on the restricted access for ‘sensitive data’, which is now defined as ‘very high-resolution data having ground sampling distance of better than fifty centimetres’, it still falls short of the limit set by countries like the USA for commercial distribution of images.
- Possibly, [all very high-resolution data need not be sensitive](#) though all sensitive data could come under very high-resolution data as a sub set.
- Hence the criterion for sensitive data could be more refined to mitigate competitive disadvantage for Indian industry.
- Further the guidelines are to be extended to cover different modes of commercial arrangements in a global context since in the current environment, it is highly likely that new start-ups in private sector can look for sustenance based on domestic and overseas markets.

https://www.isro.gov.in/sites/default/files/spacers_policy_ngp_2020_draft.pdf

Space Remote Sensing Policy - 2020 Policy Goals

The Policy states that Government of India shall:

1. promote Indian Industries to carry out space based remote sensing activities within and outside India.
2. enable easy access to space based remote sensing data, except for “sensitive data and information”.
3. concentrate on realisation of space based remote sensing systems to cater to the country’s needs, that cannot be effectively, affordably and reliably satisfied by the commercial entities, either due to national security concerns or economic factors.
4. provide a timely and responsive regulatory environment for the commercial Indian industry to establish and operate space based remote sensing systems.

Norms, Guidelines and Procedures for Implementation of Space RS Policy - 2020

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Promoting RS industry

2.1 Promoting Indian Industries to carry out space based remote sensing activities within and outside India.

Demand and supply driven.

Government to promote increased participation of Indian Industries to provide end-to-end space based remote sensing services

Respect for international Law (UN treaties)

Realisation of any space asset by an Indian entity, will be permitted through a process of authorization.

Access to data

2.2 Enabling easy access of satellite based remote sensing data.

Easy dissemination of data and services

A simple process of registration/authorization of space asset

Due to national security considerations,' a different mechanism for dissemination of sensitive data.

Government shall reserve the right to impose/control on the imaging/observation and its data distribution, when national security and/or international obligations and/or foreign policies of the Government, so requires.

Government role for infrastructure and technologies

2.3 Concentrate on realisation of space based remote sensing systems to cater to the country's needs that cannot be effectively, affordably and reliably satisfied by the commercial entities, either due to national security concerns or economic factors.

For sustainable development initiatives, providing continuity of services, for newer technologies and R&D, remote sensing systems by the Government and shall be pursued by DOS.

In view of sensitivities involved for strategic observations, the systems that need to be developed with indigenous designs will be under the direct control of Government and shall be pursued by DOS.

Enabling regulatory mechanism

2.4 Provision of timely and responsive regulatory environment for the commercial Indian industry to establish and operate space based remote sensing systems.

Participation of private entrepreneurs through an enabling regulatory mechanism.

Space based remote sensing activities shall be authorized by the autonomous body under Department of Space (DOS).

DOS shall bring out policy guidelines and further regulations, time to time, as necessary and appropriate.

Indian entities in Space based Remote Sensing

3. Participation of Indian entities in Space based Remote Sensing activities

Indian entities can establish and operate satellite remote sensing systems to provide remote sensing data.

Non Government Private Enterprises (NGPE) can also undertake design, development and realization of satellite and associated remote sensing systems.

They can establish satellite system through their own built satellite or procured satellite.

They can establish Telemetry, Tracking & Command (TT&C) and Satellite data reception stations in or outside India.

They can offer the capacity to commercial and societal applications within India as well as outside India.

They can also supply their systems and solutions to international markets.

Indian entities can avail state-of-the-art facilities of the Government for manufacturing satellite and associated ground segment.

It can be availed from designated PSU/CPSE under DOS on commercial terms, subject to availability.

4. Authorizations for space based remote sensing

Space asset owned by Indian entity shall need authorisation. The remote sensing activities within the Indian territory can be carried out, only with an authorized space asset.

Any NGPE, intending to set up the ground station for satellite data reception, facilities for satellite tracking, controlling and monitoring, within Indian territory, shall need authorization.

A simple process of registering/authorizing such space assets is enabled. However, considering the requirements of national security, a different mechanism for authorizing the dissemination of sensitive data is envisaged.

Accordingly, following authorizations are spelt out, which need to be obtained from INSPACe.

4.1 Establishment of space asset, owned by an Indian entity, for data collection

Indian entities can **seek authorisation** to establish space asset for remote sensing **by providing information** on the spacecraft, such as, payload details, spectral bands, orbital parameters, coverage area, etc.

The NGPEs which owns and operates a space asset for remote sensing shall **be liable for any potential damages** caused to other space objects in outer space and its environment. This obligation shall be fulfilled by the entity by providing **a financial guarantee or insurance** cover to a sum, as determined by the authorizing body by taking into account the risks involved in nature and operations of that space object in outer space.

- a) a prescribed format for authorization, by providing relevant information.
- b) the financial guarantee or insurance cover by the Indian Entity
- c) The authorization shall be applicable to a specific Indian Entity
- d) The authorization shall be applicable to a specific space asset
- e) Government may impose control on operations of space assets, in case of the national security and/or international obligation and/or foreign policy requires so.

4.2 Establishing ground station within India for monitoring and control of remote sensing satellite and/or data reception.

Indian entities can seek **authorisation for setting up of ground station** within India for monitoring and control of remote sensing satellite and/or reception of remote sensing data.

a) An Indian Entity shall submit the proposal in **a prescribed format** for authorization for establishment and operations in Indian territory:

- i. Telemetry, Tracking and Command (TT&C) station(s)
- ii. Satellite Data Reception station(s)
- b) The authorization shall be applicable **to a specific Indian Entity**. Any change in ownership requires a fresh authorization.

c) The authorization shall be **applicable to specific facility** for monitoring and control of specific space asset and/or data reception from specific space asset. Any change in these requires a fresh authorization.

4.3 Registration/authorization of space asset for dissemination of remote sensing data over India

Remote sensing data over Indian territory shall be made easily accessible to users by Indian entity as long as the source of remote sensing data is originating from a registered/authorized space asset and the remote sensing data is not 'sensitive'.

- Any service provider shall submit the proposal in a prescribed format (Annexure-C) for registering the space asset, used for acquiring remote sensing data over Indian territory.
- Such remote sensing data will have ground sampling distance coarser than fifty centimeter (non-sensitive).
- The registration/authorization shall be applicable to a specific space asset. Any change or replacement of the asset requires a fresh registration/authorization.

4.4 Dissemination of sensitive remote sensing data/services of Indian territory emanating from the space asset.

Data having Ground Sampling Distance (GSD) less than fifty centimeter will be treated as 'sensitive' and requires specific authorization for dissemination.

the proposal in a prescribed format for authorization of dissemination of sensitive data of the Indian territory to any user in India.

The authorization shall be applicable to a specific space asset and any change or replacement of the asset requires a fresh authorization.

The authorization shall be applicable to a specific entity and any change of ownership requires a fresh authorization.

Additional authorization is required for disseminating the sensitive data of certain areas following a procedure laid down by the Government.

Government may impose control on the imaging/observations and data distribution, in case of the national security and/or international obligation and/or foreign policy considerations.

5. Realization of space based remote sensing systems for societal applications, strategic purpose and research & development

The **emphasis on research and development** shall continue to be under DOS in the areas of (i) implementation of societal programmes aimed at national development, (ii) development of satellites for strategic applications, and (iii) remote sensing satellite technologies including technology demonstration.

5.1 DOS shall build, operate and maintain, continuous & improved observing/ imaging capability from its own Indian Remote Sensing Satellites (IRS) programme, in order to fulfill the national commitment and as a **“public good service”**, such space based remote sensing systems shall be realised by DOS, due to reasons of economic viability or sustainability.

5.2 Remote sensing **systems with newer technologies**, for carrying out innovative experiments and technology demonstrations, shall be undertaken by DOS.

5.3 The satellite **systems for strategic sector** shall be realized using indigenous designs, systems and infrastructure providing the capabilities of secured environment by DOS.

5. Realization of space based remote sensing systems for societal applications, strategic purpose and research & development (continued)

5.4 In order to meet the requirements of national imperatives and priorities of Government, DOS shall continue to undertake remote sensing applications including research and development of algorithms/models, tools and techniques.

5.5 DOS shall make IRS satellite data having GSD of 5 meter and coarser, easily accessible on 'free and open' basis.

5.6 IRS satellite data and services which have commercial value, shall be made easily accessible through the designated PSU/CPSE under DOS, on commercial terms.

5.7 All available archived satellite data and satellite derived thematic data shall be made available for further value addition, research and development purposes

6. Promotion of usage of space based remote sensing systems

DOS shall endeavour to provide the space based remote sensing systems it has established, through its designated PSU/CPSE.

6.1 The space assets for satellite remote sensing established hitherto by DOS comprising of satellite systems and associated ground segment shall be transferred at no/notional cost to its designated PSU/CPSE for operational maintenance and commercial utilization, as deemed appropriate.

systems created upon fructification of R&D shall also be transferred at no/notional cost, to the designated PSU/CPSE

6.3 The designated PSU/CPSE under DOS shall be free to adopt suitable pricing and marketing mechanisms

6.4 The designated PSU/CPSE under DOS shall bring timely replacements for operational satellites

6.5 The designated PSU/CPSE under DOS can avail state-of-the-art facilities of the Government for manufacturing satellite and associated ground segment at no/notional cost, as deemed appropriate.

7. Provision of timely and responsive regulatory environment

7.1 Indian National Space Promotion & Authorization Center (IN-SPACe), shall accord necessary authorizations and permissions for all space based remote sensing activities, to or from Indian territory,

7.2 The provisions brought out under this Norms, Guidelines and Procedures for Implementation of Space Based Remote Sensing Policy of India - 2020 (SpaceRS NGP - 2020) forms the basis for authorizations and operations of space based remote sensing in India.

7.3 DOS through INSPACE shall make available its state-of-the-art facilities for realisation of satellites and on orbit control along with data reception through its designated PSU/CPSE to any Indian entity. While DOS makes these facilities available at no or notional cost, its designated PSU/CPSE shall provide this to any NGPEs on commercial terms.

7.4 IN-SPACe shall formulate additional authorizations, bring out detailed guidelines for submission of applications, processing and grant of authorizations, from time to time.

7.5 Department of Space (administrative ministry) bring out policy guidelines and additional regulations in respect of space based remote sensing.

ISP 2023 and EO

ISP - Strategy

Indian consumers of space technology or services (such as communication, [remote sensing](#), [data-services](#), launch-services, etc), whether from public or private sectors, shall be free to directly procure them from any source, whether private or public.

Towards this end, the **Government shall focus** on:

- i. Encouraging **advanced Research & Development** in space sector to sustain and augment the space program.
- ii. Providing **public goods and services** using space technology for national priorities.
- iii. Creating a stable and predictable **regulatory framework** to provide a level playing field to Non-Government Entities in the Space sector through IN-SPACe.

Non-Governmental Entities

NGEs shall be allowed to undertake **end-to-end activities** in space sector through **establishment and operation of space objects**, ground-based assets and related services, such as communication, **remote sensing**, navigation, etc. This would be subject to such guidelines/regulations as prescribed by IN-SPACe.

NGEs would be encouraged to:

- **establish and operate remote sensing satellite systems** within and outside India through self-owned or procured or leased satellites.
- **disseminate satellite-based remote sensing data**, as well as applications based on such data, in India and/or outside.
- develop and **commercialize technologies and applications** for enhancing and augmenting ..remote-sensing developed and provided by the Government.

IN-SPACe shall:

act as the single window agency for the authorisation of space activities by government entities as well as NGEs

- the establishment and operation of SCCs and/or satellite data reception station(s).
- dissemination of high resolution space-based earth observation data.
- in-orbit sale/ purchase/ transfer of Space Objects

work with industry – both national and overseas – to promote identified space activities and establish India as a preferred service provider for global requirements of products/services in the space sector.

ensure a level playing field for the utilization of all facilities created using public expenditure

make efforts to encourage the broadest possible dissemination of remote-sensing data and applications based on the same. IN-SPACe authorization is required for dissemination of satellite based remote sensing data of high resolution (Ground sampling distance ≤ 30 cm), owing to national security considerations. Data above GSD > 30 cm needs intimation to IN-SPACe. The thresholds of data categorization as high resolution shall be reviewed time-to-time.

ISRO shall:

enable open data access from remote sensing satellites of ISRO. In this regard, remote sensing data of GSD of 5 meters and higher shall be made easily accessible in a timely manner on 'free and open' basis to all while remote sensing data of GSD of less than 5 meter, shall be made available free of any charges to Government entities but at fair and transparent pricing to NGEs.

make available archived satellite data and satellite derived thematic data from remote sensing satellites of ISRO on 'free and open' basis for further value addition and for research and development purposes on 'as is where is' condition. The details of the archived remote sensing data in terms of resolution, latency etc., will be made known on public domain time-to-time.

ISRO shall focus on R&D in advanced technology, proving newer systems and realization of space objects for meeting national prerogatives

Department of Space shall

ensure the availability of continuous & improved earth observation capability and data to fulfil the national requirements. In this regard, it shall plan and realize remote sensing systems, with the involvement of all stakeholders.

participate in international efforts by providing critical remote sensing satellite data for disaster management efforts and meeting the requirements of the sustainable development goals formulated by the United Nations in coordination with the Ministry of External Affairs.

GIS Policy

MAP POLICY – HISTORICAL SCENARIO

TILL 1990s, MAPS MEANT SURVEY OF INDIA TOPOGRAPHIC MAPS NOW MAPS MEAN MUCH MORE THAN TOPOGRAPHIC BASE

1960s, SURVEY OF INDIA (SOI) PAPER MAPS (1:250K) STARTED BEING AVAILABLE IN CIVILIAN DOMAIN FOR “DEVELOPMENT”

1980s SOI PAPER MAPS (1:50K) ALSO AVAILABLE IN CIVILIAN DOMAIN

1990s, WITH ADVENT OF IMAGES/GIS, THE DEMAND FOR DIGITISATION OF SOI MAPS BECAME PREVALENT

MAP POLICY “LIBERALISATION” STARTED IN 1990s

GLOBAL IMAGE AND MAP AVAILABILITY CHANGED SCENARIO

2005 NATIONAL MAP POLICY – 2 SERIES MAPS

- NMP, 2005 A SOI RELATED PROCEDURE FOR OPEN SERIES MAPS DISTRIBUTION
- NO COMMITTED SUPPLY OF GIS-READY MAPS? NEW MAPS
- ELEVATION DATA RESTRICTED
- TIME-LINE GUARANTEES NEEDED FOR MAPS/GIS

Guidelines for acquiring and producing Geospatial Data and Geospatial Data Services including Maps

Reference: DST F.No.SM/25/02/2020 (Part-I) dated 15th February, 2021

SUMMARY

1. These guidelines will be [applicable to Geospatial Data, Maps, products, solutions and services](#) offered by government agencies, autonomous bodies, academic and research institutions, private organizations, Non-Governmental Organizations and individuals.
2. **No requirement for prior approval**, security clearance, license or any other restrictions on the collection, generation, preparation, dissemination, storage, publication, updating and/or digitization of Geospatial Data and Maps within the territory of India.

Individuals, companies, organizations, and Government agencies, shall [be free to process the acquired Geospatial Data](#), build applications and develop solutions in relation to such data and use such data products, applications, solutions, etc by way of selling, distributing, sharing, swapping, disseminating, publishing, deprecating and destructing. Self-certification will be used to convey adherence to these guidelines.

These guidelines shall confer on any individual or an entity a right to physical access

3. There shall be **a negative list of sensitive attributes** that would require regulation before anyone can acquire and/or use such attribute data. The negative lists mentioned above will be specific to very sensitive attributes.

Guidelines for acquiring and producing Geospatial Data and Geospatial Data Services including Maps

4. For the purposes of these guidelines, the threshold value for:

- 1. On-site **spatial accuracy shall be one meter** for horizontal or Planimetry and **three meters for** vertical or **Elevation**.
- 2. **Gravity anomaly shall be 1 milli-gal**.
- 3. **Vertical accuracy** of Bathymetric data in **Territorial Waters** shall be **10 meters** for up to 500 meters from the shore-line and 100 meters beyond that.

5. Indian Entities, whether in Government or outside, will be free to acquire, collect, generate, prepare, disseminate, store, share, publish, distribute, update, digitize and/or create Geospatial Data, including Maps, of **any spatial accuracy within the territory of India** including underwater within its territorial waters by using any Geospatial Technology, subject to regulations on attributes in the negative lists.

6. (a) Ground truthing/verification, **access to Indian ground stations** and augmentation services for **real time positioning** (Continuously Operating Reference Stations (CORS), etc) and their data shall be made available without any restrictions and with the ease of access to Indian Entities only.

(b) Terrestrial **Mobile Mapping survey, Street View survey** and surveying in Indian territorial waters shall be permitted only for **Indian Entities** irrespective of accuracy.

7. Maps/Geospatial Data of **spatial accuracy/value finer than the threshold value** can only be created and/or owned by Indian Entities and **must be stored and processed in India**.

Guidelines for acquiring and producing Geospatial Data and Geospatial Data Services including Maps

8. **Foreign companies** and foreign owned or controlled Indian companies can license from Indian Entities digital Maps/Geospatial Data of spatial **accuracy/value finer than the threshold** value only for the purpose of serving their **customers in India**. Access to such Maps/Geospatial Data shall only be made available through **APIs** that do not allow Maps/Geospatial Data to pass through Licensee Company or its servers. **Re-use or resale** of such map data by licensees shall be **prohibited**.
9. Digital Maps/Geospatial Data of spatial accuracy/value **up to the threshold value can be uploaded to the cloud** but those with **accuracy finer** than the threshold value shall only be stored and processed **on a domestic cloud** or on servers physically located within territory of India.
10. There shall be **no restriction on export of Maps/Geospatial Data** of spatial accuracy/value up to the **threshold value** except for attributes in the negative lists. Department of Revenue, Government of India will make necessary amendments in GSR in this regard.

Guidelines for acquiring and producing Geospatial Data and Geospatial Data Services including Maps

11. All Geospatial **Data produced using public funds**, except the classified geospatial data collected by security/law enforcement agencies, shall be **made easily accessible** for scientific, economic and developmental purposes to all Indian Entities and without any restrictions on their use. Such access shall be given **free of any charges to Government agencies and at fair and transparent pricing to others**. For attributes in the negative lists, appropriate regulations will be laid down separately. The Government of India shall encourage crowd sourcing efforts to build Maps by allocating public funds towards these efforts as appropriate.

12. The **Survey of India (Sol)** and other government agencies producing or owning Maps and Geospatial Data, shall take immediate measures to **simplify procedures**, revise/abolish various forms/licenses and use modern techniques such as cloud, open APIs and others to make its data accessible online in a useful format.

13. For **political Maps of India** of any scale including national, state and other boundaries, Sol published maps or **Sol digital boundary data** are the standard to be used, which shall be made easily downloadable for free and their digital display and printing shall be permissible. Others may publish such maps that adhere to these standards.

14. All citizens, companies, and organizations including Government agencies, producing Geospatial Data and information shall be **encouraged to collaborate** in mutually beneficial manner and work towards open-linked Geospatial Data. Government agencies will make all efforts to collaborate for acquiring Geospatial Data.

15. Any **violation of these guidelines** will be dealt with under the applicable laws.

Definitions

- (a) Positional data: Latitude, longitude and elevation/depth of a point or its x, y & z co-ordinates in the territory of the Republic of India.
- (b) Attribute data: Any data that when associated with Positional Data gives any additional meaning to it.
- (c) Geospatial Data: Positional data with or without attribute data tagged, whether in the form of images, videos, vector, voxel and/or raster datasets or any other type of geospatial dataset in digitized or non-digitized form or web-services.
- (d) Map: Symbolic representation of real-world objects, regions or themes on a given scale which was generally published in paper form but now also available as web-map-service.
- (e) Geospatial Technology: Any technology including but not limited to Aerial / UAV Photogrammetry, Aerial / UAV LIDAR, drones, Radar Interferometry, street view or by other means of ground survey, satellite- based remote sensing techniques, AI, underwater mapping, and others.
- (f) Indian Entity: Any Indian citizen, Government entities, Societies registered under applicable statutes, statutory bodies, Autonomous Institutions of the Government, or any Indian company or Indian LLP owned by resident Indian citizens or any Indian company or Indian LLP controlled by resident Indian citizens (as defined in the Explanation to Rule 23 of the Foreign Exchange Management (Non-Debt Instrument) Rules, 2019).

National Geospatial Policy 2022

National Geospatial Policy 2022

Gol Gazette Notification No. 5852, DECEMBER 28, 2022.

The National Geospatial Policy, 2022 (the Policy) is a **citizen-centric policy** that seeks to strengthen the Geospatial sector to support national development, economic prosperity and a thriving information economy.

The Policy builds on the Guidelines of 2021

While the Guidelines deregulated the Geospatial sector by liberalizing Geospatial data acquisition/production/ access, the Policy takes it further by laying down an overarching framework for holistic development of the Geospatial ecosystem

NGP2022

NGP spells out :

- the vision, goals for the Geospatial sector
- the strategies for achieving them.

The policy seeks to develop:

- Geospatial infrastructures,
- Geospatial skill and knowledge,
- Standards,
- Geospatial businesses,

It aims to promote innovation and strengthen the national and sub-national arrangements for generation and management of Geospatial information.

2. Vision and Goals..

To make India a **World Leader** in Global Geospatial space with the best in the class ecosystem for innovation.

To develop a coherent national framework to move towards **digital economy and improve services to citizens**.

To enable easy **availability** of valuable Geospatial data collected utilizing public funds, to businesses and general public.

To have a thriving **Geospatial industry** in the country involving private enterprise.

Vision and Goals

Milestones 2025:

Put in place an enabling policy and legal framework that supports liberalization and democratization of data

Improve availability of and access to better location data across organizations and sectors

Establish and strengthen an integrative interface for public funded data for easy access, sharing, use and reuse.

Redefinition of National Geodetic Framework using modern positioning technologies and provision of online access.

High accuracy Geoid for the entire country.

Develop and strengthen national and sub-national arrangements in information management and infrastructures

Vision and Goals

Year 2030:

High resolution topographical survey & mapping (5-10 cm for urban & rural areas and 50 cm-100 cm for forests & wastelands).

High accuracy Digital Elevation Model (DEM) for entire country (25 cm for plain, 1-3 meter for hilly and mountainous areas).

Develop a Geospatial Knowledge Infrastructure (GKI) underpinned by Integrated Data and Information Framework.

Enhance capabilities, skills and awareness to meet the future needs of the country.

Year 2035:

High resolution/accuracy Bathymetric Geospatial Data of inland waters and sea surface topography of shallow/deep seas - to support Blue Economy.

Survey and mapping of sub-surface infrastructure in major cities and towns

National Digital Twin of major cities and towns.

3. Strategy and Approach

- 3.1. To be instrumental for achieving the Sustainable Development Goals (SDGs),
- 3.2. Create Ecosystem for Atmanirbhar Bharat and also to compete in the global space.
- 3.3. Integrated Geospatial Information Framework (IGIF): drawing on international best practices (UN-GGIM or UN Committee of Experts on Global Geospatial Information Management)
- 3.4. Ensuring Continued Infrastructure for Data and Information & Communications Technology (ICT)
- 3.5. Innovation: Enabling start-up initiatives and use of evolving Technology.
- 3.6. Standards: Encouraging open standards, open data and platforms, & interoperability
- 3.7. Enduring Capacity Development: in line with the global best practices.
- 3.8. Ease of Doing Business: Continued liberalization in line with the Guidelines
- 3.9. Democratization of Data: Data produced using public funds are common good and be made easily available.

4. Institutional Framework

Geospatial Data Promotion and Development Committee (GDPDC) at the national level apex body for formulating and implementing appropriate guidelines, strategies and programs for promotion of activities related to Geospatial sector.

GDPDC shall drive the overall development of the Geospatial ecosystem. GDPDC would replace and subsume the functions and powers of earlier National Spatial Data Committee (NSDC)

DST under Government of India – nodal dept.

GDPDC shall make suitable recommendations to DST in the discharge of its functions relating to the Geospatial regime.

5. Geospatial Data Infrastructure & Mapping

14 themes as per UN-GGIM and national priorities and supporting the **Sustainable Development Goals**.

Provisions for **efficient access** by all stakeholders through **National Geospatial Data Registry (NGDR)**

Unified Geospatial Interface (UGI), an electronic data querying and processing service, for products, applications, services available through data supply chains from the Central and State Level Partnering Agency Data Nodes..

The UGI will include access to all **open Geospatial data** directly or indirectly collected by the Central and State Level Partnering Agencies on terms to be determined by GDPDC.

Access to a volunteered source of Geospatial Data from a **non-Partnering Agency**, academia, industry or citizenry through NGDR/UGI may also be allowed as per agreed terms. T

UGI will **eliminate duplicity of efforts** among national agencies that create Data using public funds and various other agencies.

Survey of India shall be the agency responsible for developing and **operating the NGDR and the UGI** in collaboration under the guidance and supervision of GDPDC. Nothing in this Policy shall be construed to prevent any Partnering Agency from presenting, providing, or disseminating data through their own mechanisms

Standards related to National Fundamental and **Sectoral Geospatial Data Themes** would be developed and promulgated

Map making has recently been deregulated in our country; NGP 2022 shall replace the National Map Policy, 2005

Geospatial Education and Skill Development

- 6.1.1. Geospatial education is imparted in around 200 universities/institutions at different levels in colleges, universities, Industrial Training Institutes and National Skill Training Institutes.
- 6.1.2 DST and Sol, together with experts from Industry and academia will work with the National Skill Development Council (NSDC) to create a Geospatial Skill Council.
- 6.1.3. Development of international standard Geospatial Science education
- 6.1.4. Centre(s) of Excellence - providing specialized courses in the domain of Geospatial Science & Technology.
- 6.1.5. Online courses and sustainable model for training will be developed through active and intrinsic industry participation.

Role and Organization of Sol

Sol - overarching nodal agency for Geospatial Data,

Only the generation/ maintenance of minimal foundational data/ core functions would be performed by Sol.

Sol would be responsible for maintaining Geodetic Reference Frame, Ortho-imagery, Elevation (DEM), Functional Areas (Administrative Boundaries) and Geographical Names (Toponymy) in collaboration with various stakeholders including the private sector

Sol would play the lead role for maintaining high resolution /high spatial accuracy Ortho-imagery, private sector will be free to take up creation, maintenance and use of such data

For creation and maintenance of remaining National Fundamental Geospatial Data Themes, nodal ministries involve.

Sol will act as facilitator in harmonization of the data sets

The organizational structure of Sol would be aligned with the changed Geospatial data regime

Role of Private Sector

The Private Sector will play a key role in creation and maintenance of Geospatial and mapping Infrastructures, innovations and process improvements and monetization of Geospatial data.

Sub-surface and Hydrographic Infrastructure A concrete strategy for mapping the subsurface infrastructure in cities in 3D mode and collating or updating data

continued emphasis on nurturing the Blue Economy,. In order to promote growth in hydrographic infrastructure and related data products.

DST would be empowered to undertake hydrographic surveys and preparation of navigational charts with the involvement of appropriate government agencies and/or private sector.

National Digital Twin National Digital Twin strategy, which is geospatially aware and built on a dynamic Geospatial infrastructure, would be devised by GDPDC to provide Reliable, accessible, usable, interoperable, continuously updated datasets

Geospatial Knowledge Infrastructure (GKI) will provide the critical Geospatial component to knowledge and automation.

6 Surveyors' Registration.

- Surveyors' Registration to maintain the quality of survey professionals through industry driven benchmarks and standards,

7. Geospatial Enterprise

- An enabling ecosystem with ease of doing business and pro-actively engaging them.
- An advisory body named as Geospatial Industrial Development Board (GIDB) headed by an eminent industrialist, will be constituted by DST
- Geospatial Incubation Centres and/or Geospatial Industry Accelerators would be established
- Indian companies in Geospatial field earn a large part of their revenue from export of Geospatial data processing services, Geospatial Technology Parks would be established considering feedbacks of relevant Departments. The Technology Parks will further advance the Geospatial industry in the country, providing businesses with the requisite facilities to innovate and invent at one place.

8. Making it happen

- The core of Integrated Geospatial Information Infrastructure is recognised to be cooperation and collaboration among various stakeholders
- GDPDC as constituted by the Government will be the apex body for implementation of the Policy, its various provisions, formulation of guidelines and steering the course of the development of Geospatial sector in the Country. DST shall be the Nodal Department of the Government for the Policy. The Nodal Ministries for National Fundamental Geospatial Data Themes and other key components of Geospatial Ecosystem are identified. GDPDC can identify additional themes and nodal agencies or make modifications in consultation with the stakeholders.

Unmanned Aircraft Systems (Drones) Rules

MINISTRY OF CIVIL AVIATION NOTIFICATION NEW DELHI, THE 25TH
AUGUST, 2021 AND AS FURTHER AMENDED

Unmanned Aircraft Systems (Drones) Rules

MINISTRY OF CIVIL AVIATION NOTIFICATION New Delhi, the 25th August, 2021 **The Drone Rules, 2021**

Applicability

(1) Applicable to—

- (a) all persons owning or possessing, or engaged in leasing, operating, transferring or maintaining an unmanned aircraft system in India;
- (b) all unmanned aircraft systems that are registered in India; and
- (c) all unmanned aircraft systems that are being operated for the time being, in or over India.

(2) The provisions of the Aircraft Rules, 1937 shall not apply to unmanned aircraft systems except in case of an unmanned aircraft system with maximum all-up-weight of **more than 500 kilograms**;

(3) These rules **shall not apply to** an unmanned aircraft system belonging to, or used by, the naval, military or air forces of the Union of India.

Important definitions

- “digital sky platform” means the online platform hosted by the Directorate General of Civil Aviation for various activities related to the management of unmanned aircraft system activities in India
- “green zone” means the airspace of defined dimensions above the land areas or territorial waters of India, upto a vertical distance of 400 feet or 120 metre that has not been designated as a red zone or yellow zone in the airspace map for unmanned aircraft system operations and the airspace upto a vertical distance of 200 feet or 60 metre above the area located between a lateral distance of 8 kilometre and 12 kilometre from the perimeter of an operational airport

UAS Rules

Authorisation Framework

CERTIFICATION OF UNMANNED AIRCRAFT SYSTEM

6. General.— No person shall operate an unmanned aircraft system in India unless such unmanned aircraft system conforms to a type certificate or is exempted from the requirement of a type certificate under these rules.

10. Acceptance of approvals given by foreign regulators.— On the basis of the approval granted to any type of unmanned aircraft system by such of the Contracting States, as may be specified by the Central Government by notification in the Official Gazette, the Director General may issue type certification to that type of unmanned aircraft system.

11. Imports.— Import of unmanned aircraft systems shall be regulated by the Directorate General of Foreign Trade or any other entity authorised by the Central Government.

Mandatory safety features

12. Mandatory safety features.— (1) The Central Government may, in future, by notification in the Official Gazette, specify safety features to be installed on an unmanned aircraft system by persons owning it, which may include among others, the following safety features, namely:—

- (a) ‘No Permission – No Takeoff’ hardware and firmware;
- (b) Real-time tracking beacon that communicates the unmanned aircraft system’s location, altitude, speed and unique identification number; and
- (c) Geo-fencing capability.

(2) Every person who owns an unmanned aircraft system shall adopt safety features notified under sub-rule (1) within such period, not less than six months from the date of publication of such notification, as the Central Government may specify.

OPERATION OF UNMANNED AIRCRAFT SYSTEM

19. **Airspace map.** – The Central Government may, within thirty days of the date of notification of these rules, publish on the digital sky platform, an airspace map for unmanned aircraft system operations segregating the entire airspace of India into red zone, yellow zone and green zone, with a horizontal resolution equal or finer than 10 meters.
20. **Interactive maps.** – The airspace map for unmanned aircraft system operations shall be so designed as to be programmatically accessible through a machine readable Application Programming Interface and interactive so that unmanned aircraft system pilots shall be able to plot their proposed flight plan and easily identify the zone within which it falls so as to assess whether or not they need to make an application for prior approval.
21. **Mandatory pre-flight verification of zonal restrictions.**— Before commencing an unmanned aircraft system operation, a remote pilot shall mandatorily verify the digital sky platform for any notification or restriction applicable to unmanned aircraft system operations in the intended area of operation.
22. **Requirement of prior permission.**—(1) No person shall operate an unmanned aircraft system in a red zone or yellow zone without prior permission. (2) No prior permission shall be required for operating an unmanned aircraft system in a green zone, subject to the provisions of rule 21.

OTHER PROVISIONS

REMOTE PILOT LICENCE

31. General. – No individual other than a holder of a valid remote pilot licence enlisted on the digital sky platform shall operate an unmanned aircraft system.

32. **Classification.**— A remote pilot licence shall specifically mention the category, sub-category and classification of the unmanned aircraft system or a combination of these, for which it is issued.

33. **Eligibility.** –An individual shall be eligible to obtain a remote pilot licence, if he—

- (a) is not less than eighteen years of age and not more than sixty-five years of age;
- (b) has passed class tenth examination or its equivalent from a recognised Board; and
- (c) has successfully completed such training as may be specified by the Director General, from any authorised remote pilot training organisation.

.....Procedure and other provisions ..Training, R&D, Insurance, Air Traffic Management ..

Further Amendments and initiatives to Drone Rules

- Drone Airspace Map published on 24th September 2021, has opened nearly 90% of Indian airspace as a green zone for drone flying up to 400 feet.
- On 30th September, 2021, the Government notified the Production-Linked Incentive (PLI) scheme to promote the growth of drone manufacturing by private companies. The scheme provides for an incentive of Rs 120 crores, spread over three financial years. The PLI rate is 20% of the value addition over three financial years.
- UAS Traffic Management (UTM) Policy Framework was published on 24th October 2021.
- Drone certification scheme was notified on 26th January 2022, making it easier to obtain type certificate by drone manufacturers.
- Drone import policy was notified on 9th February 2022, banning import of foreign drones and freeing up import of drone components.
- Drone (Amendment) Rules, 2022 notified on 11th February 2022, abolished the requirement of a drone pilot license.
- Guidelines for operation of Production-Linked Incentive (PLI) scheme for drone and drone components was notified on 29th November 2022.

Nature of Cases involving Remote sensing data

Encroachment evidences – Forestry, Coastal zone regulations etc.

Urban Land Taxation disputes

Privacy infringement

Liability for damages

Right to information

Cultivation of Drug related plants, Trafficking

Privacy Protection

DIGITAL DATA PRIVACY PROTECTION ACT 2023

THE DIGITAL PERSONAL DATA PROTECTION ACT, 2023

Gol Gazette notification No. 25 NEW DELHI, FRIDAY, AUGUST 11, 2023

An Act to provide for the processing of digital personal data in a manner that recognizes both the **right of individuals** to protect their personal data and the **need to process** such personal data for lawful purposes and for matters connected therewith or incidental thereto.

Key Definitions.

- “data” means a representation of information, facts, concepts, opinions or instructions in a manner suitable for communication, interpretation or processing by human beings or by automated means;
- “Data Fiduciary” means any person who alone or in conjunction with other persons determines the purpose and means of processing of personal data;
- “Data Principal” means the individual to whom the personal data relates and where such individual is—
 - (i) a child, includes the parents or lawful guardian of such a child;
 - (ii) a person with disability, includes her lawful guardian, acting on her behalf;
- “Board” means the Data Protection Board of India established by the Central Government under section 18
- “Consent Manager” means a person registered with the Board, who acts as a single point of contact to enable a Data Principal to give, manage, review and withdraw her consent through an accessible, transparent and interoperable platform

Provisions covered

3. Application of Act.. Territorial jurisdiction, exclusion for personal or domestic purpose

Chapter II,

4. Grounds for processing personal data.. a lawful purpose with Data Principal's consent or for legitimate use

5. Notice

6. Consent.. shall be free, specific, informed, unconditional and unambiguous with a clear affirmative action; Data Principal's right to withdraw her consent at any time..

7. Certain legitimate uses.

8. General obligations of Data Fiduciary.. responsible for complying with the provisions of the Act

9. Processing of personal data of children.. Consent as well as not to cause any detrimental effect on the well-being of a child; not to undertake tracking or behavioural monitoring of children or targeted advertising directed at children.

10. Additional obligations of Significant Data Fiduciary (notified by the central govt.)..data audit, Data Protection Impact Assessment etc.,

Chapter III. RIGHTS AND DUTIES OF DATA PRINCIPAL

- 11. Right to access information about personal data.
- 12. Right to correction and erasure of personal data
- 13. Right of grievance redressal
- 14. Right to nominate.
- 15 Duties of Data Principal.

CHAPTER IV. SPECIAL PROVISIONS

- 16. Processing of personal data outside India.
- 17. Exemptions.

CHAPTER V. DATA PROTECTION BOARD OF INDIA

- 18. Establishment of Board.
- 19. Composition and qualifications for appointment of Chairperson and Members.
- 20. Salary, allowances payable to and term of office.

CHAPTER V. DATA PROTECTION BOARD OF INDIA....

- 21. Disqualifications for appointment and continuation as Chairperson and Members of Board.
- 22. Resignation by Members and filling of vacancy.
- 23. Proceedings of Board.
- 24. Officers and employees of Board.
- 25. Members and officers to be public servants
- 26. Powers of Chairperson.

CHAPTER VI. POWERS, FUNCTIONS AND PROCEDURE TO BE FOLLOWED BY BOARD

27. Powers and functions of Board.

28. Procedure to be followed by Board.

CHAPTER VII. APPEAL AND ALTERNATE DISPUTE RESOLUTION

29. Appeal to Appellate Tribunal

30. Orders passed by Appellate Tribunal to be executable as decree.

31. Alternate dispute resolution

32. Voluntary undertaking.

CHAPTER VIII. PENALTIES AND ADJUDICATION

33. Penalties.

34 Crediting sums realised by way of penalties to Consolidated Fund of India.

CHAPTER IX. MISCELLANEOUS

35. Protection of action taken in good faith.

36. Power to call for information.

37. Power of Central Government to issue directions.

38. Consistency with other laws.

39. Bar of jurisdiction.

40. Power to make rules.

41 Laying of rules and certain notifications..

42. Power to amend Schedule

43. Power to remove difficulties.

44. Amendments to certain Acts.

SCHEDULE (magnitude of Penalties for violations)



Thank you

