

Geospatial and Remote Sensing Technologies and Laws

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Understanding and Legal Issues of GIS

- What is GIS? A Geographic Information System is a framework for gathering, managing, and analysing data.
- GIS can be used by almost all the fields, from Medicine to business, to law enforcement to urban planning and so on.
- Data acquired by GIS activity need legal control?
- Is the data really sensitive always?
- How should data be protected?
- What should be the rights and obligations of the sensing state with respect to data acquired?
- Is individual rights affected?
- Has the subjacent sensed state the right to object? Right of sovereignty, Right of sensed state, Issue of global transparency, IPR/Copyright and neighboring rights, Data Protection, Confidentiality /data privacy Issues relating, Consumer protection, liability, Censorship etc..
- Benefits of GIS--GIS technology is predicted to be a more prevalent part of our daily lives with the widespread of smart technology and Internet of Things. The use of Cloud computing can integrate user's geospatial applications.

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Benefits of Geospatial Technology

- Law follows technology and technological developments need legal regulations. It is also true with geospatial technologies-Shift from Technology to Commercial phase
- Geospatial Technology has become an indispensable and empowering tool of sustainable development. The Mapping as a service applications has created an easily accessible and affordable way for agencies depending on such data to opt for subscription based and imagery based products. Aerial mapping is becoming easier with the help of GIS
- The contribution of space and Geospatial Technology in many fields including- Communications, navigation, education, remote sensing, data processing, support services, land infrastructure transportation, etc.. have made lot of impact on Social - Economic - Culture – Scientific aspects of Humanity
- We can no way deny its importance in our modern society. If we take the history of its application from past to present, the applicability of such type of data is gradually increasing with the development of geospatial technology. Simultaneously these data raise storm in the eye of law

LPG and its impact on Geospatial Technology

- Globalization, Liberalization, Commercialization and privatization and their impact on GIS and RS Technologies
- Changing Role of States from Independent to interdependent, law-makers to law –takers, regulators to facilitators and so on...
- Concern has increased over the legal status of space commerce both at the national international level.
- Increased capabilities to use these technologies have also brought Legal Challenges
- Growing trend towards commercialization and privatization a greater understanding is needed regarding which activities will be allowed and which will be challenged.
- This is exactly where the law of outer space steps in.

Commercialization and Privatization of Space and Geospatial Activities in India

- Achieved considerable self-reliance and promoting its commercial utilization Satellite data
- A mutually rewarding partnership between the Indian Space programme and Industry has been built
- India got recognition as a major space-faring nations in the world and opened up global opportunities and demand for Indian services
- 1992: The Antrix Corporation was established (A commercial wing of the Indian Space Research Organization (ISRO) with the objective of marketing space products and services in India and abroad.
- Global Marketing requires establishing close working arrangements between governmental and private industry which facilities satellite communications, navigation and position location, remote sensing, data processing, support services, land infrastructure etc.
- There is a huge market to be tapped in India and abroad in the fields of space science and Geospatial services in the wake of recent development.

Geospatial Technology and Legal Issues

- legal issues related with application of geospatial data. Some of the issues are *sovereignty, privacy, intellectual property rights, liability, national security, public-private partnership, quality and pricing of data and human rights*. These issues are challenging the very existence of geospatial industry. In this regard, the developing countries like India have poor legal framework.
- Emerging legal issues including sovereignty Vs jurisdiction, rights Vs responsibilities, State liability Vs individual liability, access Vs privacy, intellectual property rights (IPR), public-private partnerships (PPP), national security, quality & pricing of data, authenticity of data in courts, Issues of human rights.
- Is data acquired by Geospatial activity need legal control? Is the data really sensitive always? How should data be protected? What should be the rights and obligations of the sensing state with respect to data acquired?
- Is individual rights affected? Has the subjacent sensed state the right to object, Right of sensed state, Issue of global transparency, IPR protection including Copyright and neighboring rights, Data Protection, Confidentiality /data privacy Issues relating, Consumer protection, Censorship etc..

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GIS in Court:

- This issue comes when our society is fully dependent on geospatial data. As per Lewis Hines, “*Photographs may not lie, but liars may photograph.*” The solution of litigation requires evidence in court. The judges in court would want to know about the veracity of the spatial analysis, the acquisition and interpretation of the data, the credibility of the data along with that of the professional and expert witness. The burden of proof is to be discharged on replying the following questions before any court of law as per Nancy Obermeyer :
 - Who will verify the examination of data?
 - How will the examination approach the diverse applications of GIS?
 - What are the core skills and knowledge tested by the certification examination?
 - How these certification examinations assure high standards among GIS professionals?
 - What test format would best suit certification?
- After some period, the judges will get precedent to deliver the judgments related with these issues. But for the time being, there are no such precedents, which is another legal hindrance.

Understanding Remote Sensing

- The term 'remote sensing' can generally be defined as "the science and art of obtaining information about an object, area, or phenomenon through the analysis of data acquired by a device not in contact with the object, area, or phenomenon under investigation."
- This broad definition includes cameras, ocean buoys, and RADAR devices. Thomas Lilles & Ralph Kiefer, Remote Sensing and Image Interpretation
- In 1972, the United Nations broadly defined remote sensing as "a system of methods to identify the nature and determine the conditions of objects on the surface of the Earth and of phenomena on, above, or below it, by observation from airborne or spaceborne platforms."
- The 1986 U.N. resolution 41/65, remote sensing is narrowly defined as "the sensing of the Earth's surface from space by making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects, for the purpose of improving natural resources management, land use and the protection of the environment."

Application of RS

- Remote Sensing applications in the country under the umbrella of the National Natural Resources Management System (NNRMS) has achieved operationalization in diverse themes, such as
- **Civilian:** Agriculture and soil; Forest, environment and biodiversity; Water management and provision; Disaster support; hurricane Katrina; Land use including mapping; Weather and climate forecasting; Ocean management including fishing zones and coastal mapping
- **Commercial:** Google, Microsoft, and Yahoo! are among the most popular commercial entities that offer satellite and aerial imagery services. Some specific developments are: Google Earth, Microsoft Live Local, Yahoo! Maps, Geo Eye, A9.com
- **Military:** Resource deployment, mission planning, targeting, battle damage assessment, intelligence gathering, and trend analysis.

History of Remote Sensing

- The history of remote sensing starts from the year 1959 when the US launched the Discoverer series which was followed by SAMOS (i.e., Satellite and Missile Observation System), also known as Area Surveillance System. The very first successful flight of SAMOS was made in 1961, which was supposed to be a spying satellite initiative.
- In response to this the Soviet Union launched a remote sensing satellite called Kosmos 4 in 1962. All the subsequent technological developments resulted in the “deployment of full-fledged operational reconnaissance systems for gathering data all over the world”.
- After 1968, a turn can be seen in the usage of remote sensing activity from spy satellites to civilian use. The resultant debate was because of the controversial implications of this technology.
- Different sovereign nations seriously started talking about it in the first Conference on Space organized by the United Nations in Vienna in 1968. By the year 1969, the Committee on Peaceful Uses of Outer Space (COPUOS) initiated a study on Remote Sensing

History of Remote Sensing

- Even US started taking initiative from year 1972 to use remote sensing technology for civilian use. A whole Landsat system of satellites were launched one after another starting from the year 1972
- Even India has sent satellites to outer space for the civilian use of remote sensing such as IRS-1A/1B.
- SPOT 1, 2 and 3 was projected by France;
- ERS-1 of European Space Agency and MOS 1 and 2 JERS-1 of Japan were projected to the outer space for the same purpose.
- All these above mentioned satellites are still in use and they give abundant amount of information and images which are available from satellite operations and their distribution is spread across the globe.

Drafting History of RS Principles

- Different proposals, which were subject to negotiation, can be categorized into three critical elements:
- conditions for sensing, conditions for access and distribution of data, and international responsibility regarding conducting remote sensing activities.
- The negotiation was put forward mainly in two stages:
- first, debates on conditions for sensing – such as prior consent, limit on location, and veto right; and
- second, debates on rules concerning the resulting information – such as priority access and control on dissemination of data.
- The detailed examination of drafting history can be roughly divided into three periods:
- 1) the era prior to the 1978 Moscow Convention on the Transfer and Use of Data of Remote Sensing of the earth from Space;
- 2) the Moscow Convention and International Satellite Monitoring Agency;
- 3) post Moscow Convention towards the 1986 UN Remote Sensing Principles

Drafting History of RS Principles

- The initial formulation phase of the UN Remote Sensing Principles began with a 1970 proposal by Argentina, which claimed that prior consent was required from the sensed state before another state conducted remote sensing.
- The 1974 Brazil and Argentina draft proposal again insisted on prior consent for sensing any foreign territory and rigid control over sensing natural resources
- The United States maintained its stance for freedom of sensing, adhering to the Open Skies Policy and recognizing the commercial potential of remote sensing data, a working paper entitled *Legal Implications of the Earth from Space*.
- The Soviet Union and France made a joint proposal in 1974. This proposal also required prior consent and the legality of sensing was limited in its location, suggesting that freedom of sensing be permitted only in the areas outside the national jurisdiction of any state.

Drafting History of RS Principles

- The 1974 Soviet-French proposal led to the 1978 Moscow Convention on the Transfer and Use of Data of Remote Sensing of the Earth from Space. This convention set forth the detailed rules with respect to the dissemination of data, which can be seen as a data policy
- In 1981 Mexico proposed priority access as well as prior notification.
- The 1982 Brazilian working paper provided a compromise solution by way of a restriction of state responsibility as well as data availability
- The United States intended to commercialize the remote sensing system through the 1984 US Land Remote Sensing Commercialization Act

Principles relating to remote sensing of the earth from outer space

- **PRINCIPLE I:** Definitions: The term "remote sensing" means the sensing of the Earth's surface from space by making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects, for the purpose of improving natural resources management, land use and the protection of the environment; Other terms like Primary Data, Processed data, analysed information
- **PRINCIPLE II:** Remote sensing activities shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic, social or scientific and technological development, and taking into particular consideration the needs of the developing countries.
- **PRINCIPLE III:** Remote sensing activities shall be conducted in accordance with international law, including the Charter of the United Nations, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and the relevant instruments of the International Telecommunication Union.

Principles relating to remote sensing of the earth from outer space

- PRINCIPLE IV: Remote sensing activities shall be conducted in accordance with the principles contained in article I of the OST, 1967. These activities shall be conducted on the basis of respect for the principle of full and permanent sovereignty of all States.
- PRINCIPLE V: States carrying out remote sensing activities shall promote international cooperation in these activities. PRINCIPLE VI: In order to maximize the availability of benefits from remote sensing activities, States are encouraged, through agreements or other arrangements, to provide for the establishment and operation of data collecting and storage stations and processing and interpretation facilities, in particular within the framework of regional agreements or arrangements wherever feasible
- PRINCIPLE VII: States participating in remote sensing activities shall make available technical assistance to other interested States on mutually agreed terms.
- PRINCIPLE VIII: The United Nations and the relevant agencies within the United Nations system shall promote international cooperation, including technical assistance and coordination in the area of remote sensing

Principles relating to remote sensing of the earth from outer space

- PRINCIPLE IX: In accordance with article IV of the Registration Convention and article XI of the OST, a State carrying out a programme of remote sensing shall inform the Secretary-General of the United Nations.
- PRINCIPLE X: Remote sensing shall promote the protection of the Earth's natural environment. PRINCIPLE XI: Remote sensing shall promote the protection of mankind from natural disasters. PRINCIPLE XII: As soon as the primary data and the processed data concerning the territory under its jurisdiction are produced, the sensed State shall have access to them on a non-discriminatory basis and on reasonable cost terms.
- PRINCIPLE XIII: To promote and intensify international cooperation, especially with regard to the needs of developing countries, a State carrying out remote sensing of the Earth from space . PRINCIPLE XIV: In compliance with article VI of the OST, States operating remote sensing satellites shall bear international responsibility , principles and the norms of international law. PRINCIPLE XV: Any dispute resulting from the application of these principles shall be resolved through the established procedures for the peaceful settlement of disputes.

UN Remote Sensing Principles – Issues & Concerns

Type of Data

- Recognizes application of RS Principles to limited forms of Earth's observation i.e. activities which are conducted in order to:
 - improve the management of natural resources
 - use of land
 - protection and preservation of the environment
- Excludes the military or commercial activities

Responsibility for Remote Sensing activities (2nd Sentence)

- State responsibility as embodied under the Principles shall be without prejudice to the customary norms of responsibility recognized under the International Law

Legality of Dissemination of Satellite Imagery

- 2 opposing views:
 - Western School of Thought - sovereignty in the form of freedom of action of the sensing State - unrestricted use of satellites for remote sensing and freedom of distribution of satellite imagery
 - Socialist School of Thought - sovereignty over natural re-sources of the sensed State - prior consent of the sensed state for distribution of satellite imagery to third state parties.

UN Remote Sensing Principles – Issues & Concerns

- UN Remote Sensing Principles – Adopted the Western Approach but in recognition of the socialist view. (refer to Principle XII)
- Recognizes the right of the Sensing States – but guided by certain principles
- But No Requirement to Seek Consent or Authorization of the Sensed States prior to the distribution of the imagery acquired with the use of a satellite.

Seeking Information from Sensing States

- Right or Request?
- Non-discriminatory distribution of satellite imagery – Recognized Principle & incorporated in domestic laws
- At intl. level – this is a guiding but non-enforceable principle
- Sensing States expected to respond positively to such request
- ‘Non-discriminatory Access on Reasonable Cost Terms’ – scope? – Marginal Cost or Market Price.
- Trading of Sensed Data?
- Information relating to Natural Disasters?

The Legal Value of the UN Remote Sensing Principles:

- The legal value of the UN Remote Sensing Principles is often debated. In examining their legal value, it is necessary to approach the issue from two stand- points: the analysis of UN General Assembly Resolutions amongst international law instruments, and the actual practice associated with remote sensing.
- The UN Remote Sensing Principles are in the form of a UN General Assembly Resolution. It is generally perceived that a UN General Assembly Resolution is not binding as a document in itself, as it is clearly distinguished from a binding instrument such as a treaty or a convention.
- A binding instrument is a law made, executed, and ratified by governments.
- it is understood that the UN General Assembly Resolution itself is recommendatory in nature – as a recommendation made to the member states of the United Nations in accordance with the UN Charter.

The Legal Value of the UN Remote Sensing Principles:

- The UN Remote Sensing Principles are incorporated into continuing state practice. Over three decades, the UN Remote Sensing Principles have been widely followed by various states and entities.
- With regard to the most fundamental of these Principles, namely, the principle of sensing from space without prior consent, states have sought no permission and such practice has not encountered protests from the states whose interests were affected.
- Non-discriminatory access to data is also realized worldwide through an extensive availability of satellite data and derived products via the Internet.
- These Principles are viewed as a codification of customary legal principles that are binding on nations, pursuant to years of practical implementation, as nations continue specifically to refer to the Principles in domestic, bilateral, and multilateral legal documents.
- The Principles are actually the only source of legislation devoted to satellite remote sensing at an international level, and other relevant legislation or principles tend also to follow them.

RS Issues

- While deciding the principles, a lot of issues were discussed regarding prior consent of the sensed country, prior consultation between the sensed and sensing country, equal access to the information gathered from the sensed country by third parties, and the legality of information gathered by the remote sensing activities considering the national sovereignty of the sensed country.
- The principles also decided about prior consent in cases where sensing country is using remote sensing on the sensed countries. The Rules rejected the notion of absolute national sovereignty related to sensing process which further is not acceptable considering the extent to which this leaves the sensed country vulnerable to the sensing country.
- About equal access to information to the sensed and third party, the rule followed the “equal access policy”. The sensed country can not only access the processed data but the primary received data and any analyzed information. Any third party, including NGOs, can also retrieve and access such data and information.

RS Issues

- The Consensus is still lacking on the legality of remote sensing based on conflicts between open or restricted regimes of access to information;
- obtaining prior consent before sensing a nation or following the principles of common heritage of mankind;
- defining a remote sensing space satellite;
- consultation between sensed and sensing states or an obligatory notification to be sent by the sensed to the sensing state;
- free or restricted dissemination and correct or detrimental utilization of the data and dispute settlement.

Remote Sensing: Legal, Ethical and Policy Challenges

- **Modernization of RSDP:** The advent of internet and satellite TV and radio have made national boundaries redundant at least in as far as dissemination of information is concerned. Since all remote sensing images are digitalized, India's database could be sold via internet or radio. So the RSDP must be modernized to provide legal safeguard.
- **Commercialization of RS and issues of licensing, access, distribution, security:** For commercialization of remote sensing data industry, the law makers shall consider the formulation of a national policy, laws both substantive and procedural related to both passive and active RS satellites including issues of licensing, access, distribution, security(issues of low level data and high level data),copy right and protection of data right. Reiterating the risk of the commercialization of such data, a strict legal framework must be drawn up to avoid such sensitive data from falling into the wrong hands, and it is this concern that finds the focal highlight
- **Legal issues pertaining to EO (Earth Observation):** Data policy for private enterprise includes concept of licensing (whether to license certain activities or licensing certain entities to undertake certain activities); Good Conduct; Financial Responsibility; Obligatory Insurance or Reimbursement; Operational Know-how; Technical competence certification; Minimum safety requirement; Whether to respect nationals or territories in a consonance to international obligations; Dispute Resolutions and whether it would be a criminal breach of national law to operate such a satellite system without license.

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Remote Sensing: Legal, Ethical and Policy Challenges

- **Legal and Ethical Issues:** Significant legal and ethical consequences for all remote sensing professionals. For example, remote sensing technology could soon develop the capability to generate and deliver a level of information detail that could violate common societal perceptions of individual privacy
- In a nut shell, the various legal issues related to RS are :
- IPR/Copyright and neighboring rights
- Data Protection
- Confidentiality /data privacy
- Competition law
- Licensing
- Consumer protection/fitness for purpose
- Product and services liability
- Censorship and other information content related issues
- Health and safety legislation
- Patent Law---especially for GIS systems become more complex.
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India's Mile Stones and Achievement in Space Science and Technology

Realizing the immense potential of space technology for national development, India developed space and ground infrastructure for the development of space technology

- 1960s: Development technical and organizational infrastructure in order to develop satellites and satellite-launch vehicles.
- 1970s: Carried out R&D in varied scientific and engineering discipline for launch vehicles and satellites and successfully launched its scientific satellite-the Aryabhata in April, 1975
 - Efforts were put towards large-scale experiments in communications such as ; SITE & STEP
 - Indigenously built satellite (Aryabhata, Bhaskara and APPLE) \ and procured from foreign space agencies (ATS-6, Symphony)
 - The experimental Satellite Launch Vehicle (SLV-3) capable of launching scientific satellite into the nearest Earth orbit was also developed.

India's Mile Stones and Achievement in Space Science and Technology

- 1980s: Movement towards self-reliance in using Space Technology for national development and launches the Bhaskara II, SLV-3 and APPLE
- In the early Eighties: Entered operational stage Space Service in Communications, Metrology and remote sensing and development of launch vehicles
 - The INSAT-1 series of communication satellite and
 - IRS series of remote sensing satellites indigenously designed
- Commercialization of Space Activities also started

India's Mile Stones and Achievement in Space Science and Technology

- 1990s: ASLV and PSLV, IRS-IB and INSAT 2A & 2B made fully operational through its own communication and remote-sensing satellite.
 - The IRS Satellite helped in extensive mapping of India's natural resources and voluminous data was generated which are used in a variety of fields
 - Even the developed countries (Including the US) have started acquiring IRS data.
 - Today India has become a leader in Space Science and Remote Sensing with the commensurate launch capability through the established PSLV
- In the New Millennium; The GSLV and EDUSAT projects are important milestones in India's ambition of sensing a spaceship to the Moon

Commercialization and Privatization of Space and Remote Sensing Activities

- Achieved considerable self-reliance and promoting its commercial utilization Satellite data
- A mutually rewarding partnership between the Indian Space programme and Industry has been built
- India got recognition as a major space-faring nations in the world and opened up global opportunities and demand for Indian services
- 1992: The Antrix Corporation was established (A commercial wing of the Indian Space Research Organization (ISRO) with the objective of marketing space products and services in India and abroad.
- Global Marketing requires establishing close working arrangements between governmental and private industry which facilities satellite communications, navigation and position location, remote sensing, data processing, support services, land infrastructure etc.
- There is a huge market to be tapped in India and abroad in the fields of space science and remote sensing services in the wake of recent development.

Remote Sensing Technology and use

■ Remote Sensing Technology Involves:

- Data Acquisition
- Data Processing
- Data Interpretation

The Remote sensing data is used for:

- Application of Information Technology in the form of GIS
- Satellite Remote Sensing
- Satellite Photogrammetry
- Satellite Communication
- Internet
- Space based Telecommunication Infrastructure
- Meteorological Information Analysis
- Forestry Analysis
- Agricultural crop acreage and yield estimation
- Drought monitoring and assessment
- Flood monitoring and damage assessment
- Land use and land cover mapping
- Water resources management
- Groundwater targeting
- Marine resource targeting
- Urban Planning
- Mineral targeting and environmental impact assessment etc..

Some of the major goals of India's remote sensing program

- To support information needs for disaster management system
- To conduct national natural resources management
- To realize large scale cartographic maps for the nation
- To establish ocean stage forecasting system and an operational ocean information service
- To facilitate improved weather forecasting
- To achieve a viable spatial information business in the country.

The National Remote Sensing Agency (NRSA)

- Department of Space sponsored organization-Nodal agency devoted to the acquisition, processing and dissemination of remote sensing data.
- Data is acquired primarily via India's own IRS series of satellite as well as satellite belonging to other countries, such as USA's Landsat.
- NRSA's data is used by a number of agencies of the Indian Government in the areas of ground water targeting, flood mapping and damage assessment, soil mapping, watershed management, crop estimation, ocean studies etc., to name just a few.

National Remote Sensing Data Policy (RSDP)

- PSLV-6 Provides satellite the data of high-resolution having a strategic value
- A regulated distribution of such high-resolution images is necessary for taking care of the user community requirements and the national security interests.
- Indian Government has approved and adopted a comprehensive Remote Sensing Data Policy (RSDP) for the acquisition and distribution of satellite remote sensing data from Indian and foreign satellite for civilian users in India
- Policy covers guidelines for satellite data acquisition and distribution in the country and also for licensing the IRS capabilities to other countries.
- The Department of Space is designated as the nodal agency for implementing the Policy
- The NRSA (National acquisition/designated agency) is allowed to enter into agreements
- The Antrix Corporation (of DOS) is identified to be a licensing Agency for IRS capacities

Privatization of Remote Sensing Operations and National Security Concerns

- In the beginning the political ideologies on Remote Sensing Law have revolved around issues of sovereignty and International and National Security.
- The developing countries are on the opinion that remote sensing violated territorial integrity of the sensed state
- Later on Open Skies Policy was adopted in the UNGA Resolution 41/65 (Supported by the US and other industrial powers)
- IRS data products are quite easily available to Indian Consumers through informal channels making the present policy obsolete cannot but be obvious
- In the advent of internet remote sensed images are digital and information could be sold via the internet
- The situation demands for the revision of the present policy in the interest of national security both in peace time and in times of conflict

Need for Legal Regime on Space and Remote Sensing Activities-I

- All the areas which concern space activities fall within the domain of the Union in List-1 of the Seventh Schedule to the Constitution of India
- It is for the Parliament to enact Law for Regulation of India's Space Policy
- India does not have a Law to Regulate the Space Activities including Remote Sensing
- India is a part to all International Space Treaties on International Space Law
- India has played an Important Role in Passing UN General Assembly Resolutions for International Cooperation and understanding in Space Activities
- It is obligatory on part of India to give effects to the Rules contained in International Space Law by making Legislation in the domestic field
- The Indian Government activities possess and distributors selling data through ISRO, Antrix Corporation and National Remote Sensing Centre at Hyderabad
- Present Global Marketing Policy do not fit for the National Security Concern
- India has to Market R.S Data to all countries as per UNGA Resolution 41/65
- ISRO is permitting private agencies to establish Remote Sensing Satellites
- India does not have a National Policy or Specific Law to Govern Earth Observation Satellite Services
- If the Department of Space is going to be commercialized the Remote Sensing Sector, there is Need for formulation of National Policy and Laws

Need for Legal Regime on Space and Remote Sensing Activities-II

- Recognizing the Privatization and Commercialization of Remote Sensing Activities, some of Developed Nations have drafted National Space Laws
- The countries lagging behind India in Technological advancement have Space Law for their Country which places them a head of India in attracting cross border investments
- It is imperative for India to have specialized space legislation for attracting foreign investment
- As the space proliferation is going in a big way in India, Space and Space related matters have to be regulated by a Legal Regime
- The Legal Framework may streamline the Satellite data acquisition and distribution in the country and also licensing the Indian Remote Sensing Satellite capacities to the foreign countries
- The Legal Issues of Privatization of Space and Remote Sensing activities includes:
 - Data Policy- Concept of Licensing
 - Good Conduct - Financial Responsibility
 - Obligatory Insurance or Reimbursemen - Operational know-how
 - Technical Competence certification -Minimum Safety Requirements
 - Whether to respect national or territories in a manner in consonance to International Obligations
 - dispute resolution and whether it would be a criminal breach of national law to operate such a satellite system without license

Existing Domestic Space Regulations

- Apart from the above constitutional provisions it prevent various legal instrument are in force on non-proliferation of dual use of technologies through appropriate export control laws. The related laws may be listed as follows:
 - The Foreign Trade (Development and Regulation) Act, 1992 (Replaced the Imports and Exports (Control) Act, 1947)
 - The Foreign Trade Policy 2004-09
 - The Atomic Energy Act, 1962
 - The Chemical Weapons Convention Act, 2000
 - The Environment (Protection) Act, 1986
 - The Customs Act, 1962
 - The Arms Act, 1959
 - The Weapons of Mass Destruction and their delivery systems (Prohibition of Unlawful activities) Act, 2005

In the Changing International Environment the field of Space and Remote Sensing Activities have to be addressed with a strong and conducive legislation.

Proposed New Legal Regime

- The issues of Conflict which may arise in the process of R.S Data acquisition, distribution and usage may be broadly needs to be studied.
- The issues of space debris in the process of acquisitions of remote sensing data need to be studied and addressed
- The issue of Global understanding/Agreement to have a rational and equitable access for using the Geo-Stationary Orbit (GSO) needs to be studied and addressed
- The issues of private participation in commercial exploitation of extra-territorial recourses needs to be studied and addressed
- The legal issues of privatization of space and remote sensing activities need to be studied and addressed include:
 - Data Policy
 - Concept of licensing
 - Good Conduct
 - Financial Responsibility
 - Obligatory Insurance or Reimbursement
 - operational know-how
 - Technical competence certification
 - Minimum Safety Requirements
 - Whether to respect Nationals or territories in a manner in consonance to International Obligations
 - Disputes reduction and whether it would be a criminal breach of national law to operates such a satellite system without license.

Summary of RS Issues in India

Issues to be taken care of while making legislation on Remote Sensing Activities in the country may be summarized as follows:

- The International Space Law and Remote Sensing Law Obligations
- The provisions of Ownership of Satellites
- Inspiring confidence in the private sector
- The extent of a liability by the private sector and obligatory requirement for insurance etc
- Principles of liability by the
- Provision for government support and an incentive for private sector
- Safeguarding the private sector's interest by way of statutory guarantees
- Transparency in whole process of licensing
- Special incentives by way of tax benefits
- Provisions for creation of enabling environment and further growth for the national space program
- Legal issues which may come in way of acquisition, distribution and usage shall be identified properly after taking the practical problems of.

Conclusion

- Remote Sensing Applications – new era of technological revolution in space
- acquisition of crucial information at a very fast pace.
- identification and detection of any impending natural disasters & provides for advance information.
- Legal Regime – Not at par with the Technological Developments
- Lack of consensus on Agreement - UN Remote Sensing Principles was achieved in 1986 – Compromise
- Non-binding set of obligations – violation will attract international condemnation.
- Provides wide discretion to states
- Distribution of data in practice is influenced by political interests
- Space Technology – advancing – Resolution capacity high – nature of data sensed covers wide range of information – UN Remote Sensing Principles covers only a portion of such data.
- Commercialization of Remote Sensing Data