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Space Law 2024

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**India: Law & Practice
and Trends and Developments**

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Khaitan & Co



INDIA



Law and Practice

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1. Global Trends

1.1 The “NewSpace” and Space Tech Economy

The current size of the Indian space economy is estimated at around USD8.4 billion, with a compound annual growth rate of 4%. The size of the sector is expected to reach USD13 billion by 2025, and India aims to capture approximately 9% of the global economy by 2030 and boost the value of the industry to at least USD40 billion by 2040.

India has been at the forefront of international developments in space law and has a well-recognised global profile. It is a signatory to various international treaties including the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies 1967 (“Outer Space Treaty”); the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space 1968 (“Rescue Agreement”); Convention on International Liability for Damage Caused by Space Objects 1972 (“Liability Convention”); the Convention on Registration of Objects Launched into Outer Space (“Registration Convention”); the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies 1979 (“Moon Agreement”) (although not ratified); and the Artemis Accords: Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes 2020 (“Artemis Accords”), evidencing its conscious efforts towards international co-operation and liability (“India-International Treaties”) (further detailed in **2.7 Commitment to International Treaties and Multilateral Discussions**).

At the domestic level, India did not have a legislative framework governing the space sector for

the first five decades of its space programme. However, the last couple of years have seen accelerated regulatory reforms including the release of the Indian Space Policy 2023 and its operational guidelines, and the establishment of a sectoral regulator (detailed in **2.2 Legal System and Sources of Space Law and Regulation** and **2.3 Role of the State in Space Law and Regulations**). The release of the Indian Space Policy 2023 marks a critical moment in India’s space journey and is in line with the Indian government’s objectives towards becoming a global leader in the space sector.

2. Existing Legal and Regulatory Framework

2.1 Characteristics of the Space Industry

The Indian space programme began in the 1960s, and since its inception, India has revolutionised the space sector by developing indigenous capabilities and has become one of the leading space-faring nations. For the first five decades since the space programme’s inception, the Indian space industry was predominantly regulated and operated by its national space agency, the Indian Space Research Organisation (ISRO), which functions under the Department of Space (DOS) of the government in India. Initially, ISRO began in 1962, as the Indian National Committee for Space Research (INCOSPAR); however, in 1969, INCOSPAR was subsumed within the Department of Atomic Energy and was renamed ISRO.

In the last few years, the Indian space ecosystem has shifted gears with the establishment of the Indian National Space Promotion and Authorisation Centre (IN-SPACe) in 2020 and NewSpace India Limited (NSIL) in 2019, which are centres under DOS, acting as the drivers of

commercial growth to encourage private sector participation in space activities. IN-SPACE is a single-window, independent nodal agency that functions as an autonomous agency in DOS and acts as an interface between ISRO and non-governmental entities. The Indian Space Association (ISpA), a voluntary industry association for Indian space and satellite companies, facilitates collaboration between the different stakeholders in the industry for accelerating the growth of the private sector.

Historically, India has been a protected economy, and investments from non-residents are subject to restrictions and conditions that are dependent on the sector and activities purported to be undertaken in India. Recently, India has liberalised its Foreign Direct Investment (FDI) norms in a move to attract foreign investments in the space sector and has now permitted foreign investments in Indian entities engaged in this sector subject to certain limitations that have been created based on subclassification of the activities undertaken by those entities. More details of the amendments to the FDI regime in India are detailed in **7.4 Foreign Investment in Space Activities**. Further, there are several government initiatives taking place in the space sector on the internationalisation front including collaborations on space missions with international agencies, such as NASA and the European Space Agency, and the recent signing of the Artemis Accords agreement.

Such developments align with the global trends of privatisation and internationalisation, and position India as an “*Aatmanirbhar*” (self-reliant) nation in space, in line with the Indian government’s “*Make in India*” initiative.

2.2 Legal System and Sources of Space Law and Regulation

The Indian legal system has elements of civil law, common law, equitable law, and customary and religious laws. The primary domestic sources of law include the Constitution of India, which is the supreme source of law, statutes enacted by Parliament or the state legislatures, local customs or conventions, and judicial decisions of courts holding precedential value.

In terms of the space sector, while India does not have an overarching space law that is currently effective and there exists limited jurisprudence in case law, there are other laws, policies and drafts of bills that attempt to regulate different aspects of the sector. Further, given the dynamic nature of the space sector, there are certain overlaps that exist with other sectors such as the telecommunications sector.

The following set of laws forms the governing framework for activities in the space sector. Note that some of these are drafts of legislations that are yet to be adopted as laws and are not effective at time of writing.

- *Indian Space Policy 2023 (“ISP 2023”) read with the Norms, Guidelines and Procedures for Implementation of ISP 2023 in respect of Authorisation of Space Activities 2024 (“NGP 2024”)*: ISP 2023 outlines the vision, objectives and strategies of the Indian space programme and defines the roles and responsibilities of the different stakeholders in the Indian space ecosystem including non-government entities (NGEs), ISRO, IN-SPACE, NSIL, DOS, etc. NGP 2024 sets out the authorisation regime for space activities including space-based communication, establishment and operation of remote sensing and amateur satellite systems, access to

available Indian orbital resources, dissemination of space-based earth observation/remote sensing data, operation of space transportation systems, establishment and operation of ground systems, liability-related aspects and registration of space objects. NGP 2024 also sets out the compliance regime, consent and intimation requirements, and conditions of authorisation that Indian entities engaged in space activities are required to comply with.

- *Satellite Communication Policy 1997* (“*Sat-Com Policy 1997*”) read with the *Norms, Guidelines and Procedures for Implementation 2000* (“*NGP 2000*”): Prior to ISP 2023, SatCom Policy 1997 was the only existing legislation governing the establishment and operation of satellite systems, satellite communication and launch vehicles, etc. It provided for the Indian National Satellite System (INSAT) to be leased to NGEs and for foreign satellites to operate from the Indian territory under special circumstances; NGP 2000 set out the regime on use of INSAT by NGEs, issuance of licences and use of foreign and domestic satellites. Currently, NGP 2024 sets out the authorisation regime for space-based communication.
- *Telecommunications Act 2023*: Governs the assignment of satellite spectrum in India. Earlier, allocation of satellite spectrum was done through auction conducted by the central government. However, under the Telecommunications Act 2023, assignment of spectrum for space research and application, launch vehicle operations, ground station for satellite control and certain satellite-based services are required to be undertaken through an administrative process.
- *ISRO Act 1969*: The first legislation governing space activities in India. It provided for the establishment of ISRO, entrusting it with the responsibility of development of indigenous technology, launching of satellites and conducting space research.
- *Remote Sensing Data Policy 2011* (“*RSP 2011*”): Governs the acquisition, dissemination and distribution of remote sensing data collected from Indian and/or foreign remote sensing satellites in India and mandates licence/permission from the government, prior to undertaking such activities. NGP 2024 sets out detailed guidelines on authorisation for dissemination of space-based earth observation/remote sensing data.
- *National Geospatial Policy 2022*: Governs access to geospatial data and encourages open standards, open data and platforms, and enhances the role of the private sector in the creation, maintenance and monetisation of geospatial and mapping infrastructures, innovations, etc.
- *Draft Space Activities Bill 2017*: Proposes to regulate commercial space activities in India, this draft bill is the first comprehensive legislation on space law in India and provides for registration of space objects, and a framework for licensing, liability, insurance and intellectual property rights in relation to space activities.
- *Draft Space-based Remote Sensing Policy of India 2020*: Proposes to provide easier access to space-based remote sensing data and information and seeks to replace RSP 2011.
- *Draft SpaceCom Policy 2020*: Proposes to regulate the use of space-based communication technologies in India and seeks to replace SatCom Policy 1997.
- *Draft National Space Transportation Policy 2020*: Proposes to regulate independent launch activities, promote development of capability and capacity in space transportation systems, enable commercial utilisation

of launch capacity and space transportation technologies, etc.

- *Draft Humans in Space Policy for India 2021*: Proposes to regulate Indian human space-flight programmes.
- *Draft Indian Satellite Navigation Policy 2021*: Proposes to regulate satellite-based navigation in India including interface for dissemination of signal-in-space.
- *Draft Technology Transfer Guidelines 2020*: Proposes to regulate the transfer of technology between DOS and the space industry at large, and mandates NSIL with the role of commercialising technologies developed by DOS/ISRO.

Draft legislations are likely to be implemented in the next couple of years, and developments in upcoming sectors that have remained unregulated so far such as space data processing, space insurance, intellectual property rights in relation to space activities and assets, etc, are anticipated.

2.3 Role of the State in Space Law and Regulations

As set out in 2.1 **Characteristics of the Space Industry**, the space industry in India has predominantly been dominated by the government, acting through DOS – the nodal space department in India, primarily functioning under the supervision of the Prime Minister’s office in India. In 1962, INCOSPAR was set up, which was superseded by ISRO in 1969.

Over the years, the Indian space industry has functioned as a participant, as a regulator and, with the onset of NewSpace (as discussed in 7.1 **Impact of “NewSpace”**), as a facilitator for private entities. Currently, DOS functions through different centres and units which constitute the Indian space ecosystem, and we have set out

the roles and responsibilities of some of the key units of DOS below.

- *Space Commission*: DOS through the Space Commission formulates policies and supervises the implementation of the Indian space programme.
- *ISRO*: ISRO is the implementation/execution wing of DOS for the Indian space programme. It is India’s national space agency, responsible for executing Indian space programmes, and is at the forefront of space development in India. It has developed satellite launch vehicles such as PSLV and GSLV, and major space systems for communication, television broadcasting, space-based navigation, resources monitoring and management, etc. Currently, ISRO works with around 60 ministries and departments to promote space technology tools and application.
- *IN-SPACe*: Acts as the regulator for the granting of authorisations and permissions to private entities in the space sector. IN-SPACe acts as a single-window, independent and autonomous body, and facilitates the demands of private players by acting as an interface between ISRO and NGEs.
- *Antrix Corporation Limited (ACL)*: Acts as the marketing arm of ISRO, under the administrative control of DOS. ACL is wholly owned by the Government of India and provides space products and services including launch, consultancy and training services, globally.
- *NewSpace India Limited (NSIL)*: Acts as the commercial arm of ISRO, under the administrative control of DOS. NSIL is a wholly owned public sector undertaking by the Government of India and primarily facilitates transfer of technology between ISRO and other players in the Indian space industry. As the name itself suggests, NSIL was recently

incorporated in light of the liberalisation of the Indian space sector for private players.

In addition to the DOS units set out above, there exist several independent units that focus on research and development in space technology.

2.4 Role of the State in the Licensing Process for Space Activities

Under ISP 2023, IN-SPACe under the aegis of DOS acts as the regulator for space activities in India and the single-window agency for authorisations. NGP 2024 details the procedure for authorisation of such space activities.

Only Indian entities are permitted to apply to IN-SPACe for authorisation (except in certain instances where non-Indian entities can directly seek authorisation), and non-Indian entities desirous of conducting space activities in India can collaborate with an Indian entity in the form of an Indian subsidiary, joint venture, partnership, etc to seek authorisations.

The following space activities need authorisation from IN-SPACe:

- establishment and/or operations of space objects;
- operations of space transportation systems;
- planned re-entry of space objects with or without recovery;
- establishment and/or operation of ground systems;
- dissemination of space-based earth observation/remote sensing data; and
- sale/purchase/transfer of space objects in orbit.

Timelines: Any Indian entity seeking authorisation can apply on a dedicated portal for application to seek authorisation from IN-SPACe at

IN-SPACe Digital Platform (IDP). Upon receipt of complete application and inter-ministerial/departmental consultations, if required, IN-SPACe grants approval within a period of 75 to 120 days.

Information requirements/documentation: Further, the application form mandates varying levels of compliance and disclosure based on the proposed activity to be undertaken. However, every applicant is required to demonstrate financial and technical credentials, and operational, infrastructural and technical capabilities in relation to the activity proposed to be undertaken by the applicant. Additionally, applicants are required to disclose their net worth, significant beneficial owners (if any) and criminal records, and obtain security clearance (if sought by IN-SPACe).

2.5 Role of the State in Co-ordinating the Use of Radio Frequencies and Orbital Slots

In India, radio frequencies and spectrums are controlled by the central government, and the central government issues guidelines under the National Frequency Allocation Plan (NFAP) for the use of spectrum. The NFAP provides a broad regulatory framework, identifying which frequency bands are available for different services including cellular mobile service, Wi-Fi, sound and television broadcasting, radio navigation for aircraft and ships, defence and security communications, disaster relief and emergency communications, satellite communications and satellite broadcasting, etc.

The Wireless Planning & Coordination (WPC) wing of the Department of Telecommunications, Ministry of Communications, in India is the national radio regulatory nodal agency of the Government of India and represents India at the

International Telecommunication Union (ITU). It is responsible for planning, engineering, regulating, managing and monitoring the limited natural resources of radio frequency spectrum and satellite orbits. Further, the Wireless Monitoring Organisation functions as a field unit of WPC and undertakes spectrum management and coordination to avoid interference.

For satellite communications in particular, the SATCOM Monitoring Centre (SMC) Division (earlier known as the Network Operations and Control Centre), is responsible for control, monitoring and coordination of satellite communication services and satellite-based networks in India.

It is relevant to note that until the release of NGP 2024, private players were permitted to obtain orbital slots only from WPC. However, satellite players are now permitted to approach other international agencies to obtain frequency and orbital slots (as discussed in **3.1 General Rules on Space Activities**). Further, NGP 2024 imposes certain obligations upon operators to ensure non-interference (as discussed in **3.2 Principles of Non-interference and Prevention of Harmful Interference**).

2.6 Role of the State in the Launching Process

The Indian space sector has historically been controlled by the government. Accordingly, for the large part of India's space journey, ISRO, through its centres such as Satish Dhawan Space Centre, Vikram Sarabhai Space Centre, etc, has been the primary entity responsible for the manufacturing and launch of space objects. However, it is relevant to note that the manufacturing of all ISRO launch vehicles was ably supported through the back-end assistance of other private entities in the market (such as Godrej Aerospace, Larsen & Toubro, ACL, etc) that were

involved in supplying parts and components for manufacturing, through a subcontracting model.

As discussed in **2.1 Characteristics of the Space Industry**, India has its own space programme and has launched numerous launch vehicles and satellites for the purposes of space exploration including landing a rover on the south pole of the moon and the world's least expensive Mars mission, etc.

Further, India has relied on space assets for purposes including weather forecasting, disaster management and national security.

India has further, through its commercial arm ACL, facilitated the launching of space assets for several other countries including the USA, the UK, Japan and Germany. With the onset of NewSpace and the liberalisation of the space sector, ISRO and IN-SPACe through NSIL have made efforts towards technology transfer in the industry. Currently, several private entities in India (such as Skyroot Aerospace) are involved in designing, manufacturing and building space launch vehicles.

2.7 Commitment to International Treaties and Multilateral Discussions

International Treaties/Multilateral Relations

India has been an active participant in international space law developments and is a signatory to various international treaties such as the India-International Treaties (listed in **1.1 The New Space and Space Tech Economy**).

Moreover, India has entered into bilateral and multilateral relations with multiple countries and space agencies for peaceful uses of outer space. In the last five decades, India has signed over 260 space co-operation documents with 61 countries and five multinational bodies including

the USA, Mexico, Japan and France in domains such as earth observation, climate actions, space exploration and space situational awareness.

International Committee/Conferences

India has been a member of the Committee on the Peaceful Uses of Outer Space (COPUOS) since its inception in 1959, where it acts as the chair of the scientific and technical subcommittee's new working group on 'Long Term Sustainability of Outer Space'.

Further, India is a member of the conference on disarmament and in fact presided over the conference held earlier this year in February 2024, demonstrating its commitment to prevention of use of force/weapons in outer space.

India also actively participates in Inter-Agency Space Debris Coordination Committee (IADC) activities for space debris mitigation and the activities of the IAF Space Traffic Management subcommittee for collision avoidance, disposal of space hardware, etc, showcasing its commitment towards protection of the space environment.

Domestic Legal Framework

Under the Constitution of India, India is obligated to respect international law and treaty obligations under all treaties to which it is a signatory. Such laws become binding when codified/adopted into the domestic law of the state. NGP 2024 mandates space actors to comply with the obligations under international treaties to which India is a signatory including the India-International Treaties.

India, being a party to the Outer Space Treaty, is required to follow the 'principle of due regard' when conducting space activities and is required

to take steps to avoid harmful interference of interests of other countries. Although the principle has not been defined specifically, India implements this through imposing compliance requirements on Indian entities participating in this sector through NGP 2024.

Breach of obligations under the international treaties by any government entity and/or NGE ("Indian Entity", as defined under NGP 2024) exposes the Indian Entity to immediate reporting/notification requirements to IN-SPACE and/or the obligation to undertake mitigation measures/provide financial or other assistance, as directed by IN-SPACE.

Further, NGP 2024 also sets out detailed guidelines re third-party liability arising out of potential damages due to space activities undertaken by Indian Entities (as set out in **2.8 Insurance and State Measures on Liability for Damages**).

2.8 Insurance and State Measures on Liability for Damages

Space activities carry high risk and potential for damage – on ground, in air and in outer space. Under the Liability Convention, to which India is a signatory, the liability for damages caused lies with India, as a state. With the liberalisation of the space sector, the Government of India is aiming towards holding other space actors, including private entities, accountable for potential damages due to space activities undertaken by them.

Prior to the release of NGP 2024, the Indian government had also introduced indemnity, insurance and financial guarantee obligations onto private entities through the Draft Space Activities Bill 2017. In apprehension of such obligations, in 2023, ISpA, on behalf of private Indian space companies, deliberated a 'shared-liability model'

with the government, where liability insurance for domestic satellite and rocket companies could be distributed between the private companies and the government. However, recently, the Indian government under NGP 2024 released detailed guidelines imposing third-party liability on private entities.

Guidelines on Liability Under NGP 2024

We have set out some key aspects under NGP 2024 pertaining to liability and insurance for space actors below.

- *Third-party liability insurance policy:* All entities engaged in space activities in India including Indian Entities and non-Indian Entities are required to procure a third-party liability insurance policy, where the terms and conditions of the insurance including minimum amount, period, cap on value of insurance amount, etc shall be prescribed by IN-SPACe. Further, all such policies are required to include the Government of India as an insured entity.
- *Contractual considerations:* All launch service agreements/launch contracts between a launch operator and a non-Indian Entity, for any space launches being undertaken by Indian Entities, should include a specific clause transferring the third-party liability arising to the respective non-Indian Entity.
- *Indemnification:* All losses, damages, costs, fees or other expenses incurred by IN-SPACe/the Government of India or its agencies under the Liability Convention or otherwise, which are attributable to an entity authorised by IN-SPACe to carry out space activities, are to be recoverable from such authorised entity.

Market Insights

Given the nascency of and lack of transparency in the space insurance sector, market data in this sphere is rare. However, recent research conducted by Spaceport SARABHAI, on the basis of a survey of leading experts in the Indian insurance industry, reveals some insights into the space insurance sector. Currently, only three types of insurance policies are available in the market – launch and in-orbit insurance, satellite life insurance and space liability insurance. However, the details of insurance providers providing these insurance policies in the market are not publicly available. Further, given the lack of precedents for such products on offer, there is no clarity on the premium amounts that would be offered by insurers. That said, in light of the developments under NGP 2024, it is anticipated that the space insurance industry will rapidly mature to address aspects of space insurance and also account for diverse space insurance offerings.

3. Rules Applicable to Space Operators' Activities

3.1 General Rules on Space Activities

ISP 2023 defines 'space activities' as activities "pertaining to the space sector including launch, operation, guidance and/or re-entry of space object from outer space". All space activities are regulated by IN-SPACe, which accords authorisations in accordance with NGP 2024. All entities carrying out space activities to or from the Indian territory or within the jurisdiction of India including the areas within its exclusive economic zone are required to seek authorisation from IN-SPACe.

It is relevant to note that authorisations under NGP are only valid for a specific period, and

a separate authorisation from IN-SPACe is required in order to conduct the space activity beyond the validity period or expand the scope of its services.

Further, NGP 2024 requires space activities to be conducted in accordance with globally recognised best practices prevailing in the industry (where specific standards are not explicitly prescribed) including in areas such as data encryption, cybersecurity, etc. Notably, the space economy in India has not matured enough to percolate through to sector benefits and accordingly, current regulations on space activities are agnostic to their impact on different sectors. That said, it is expected that the percolation through to different sectors such as healthcare and life sciences, agritech, environment and energy will occur in the near future.

Under ISP 2023, a ‘space object’ is defined as “any object launched or intended to be launched into an orbital or sub-orbital trajectory around the earth or to a destination beyond earth orbit, any constituent element of such an object or any other object as notified from time to time”. NGP 2024 requires every ‘space object’ owned and controlled by an Indian Entity to be registered in the Indian national register of space objects.

In addition to general rules pertaining to space activities, NGP 2024 contains certain key considerations/restrictions as set out below.

- **Definitions of ‘Indian Entity’, ‘KMP’ and ‘Control’:** As discussed in **2.4 Role of the State in the Licensing Process**, generally, only Indian entities that are controlled and operated by Indian citizens, ie, where the majority of the Key Managerial Personnel (KMP) are Indian citizens, are permitted to seek authorisation from IN-SPACe. It is relevant to note that NGP

2024 provides for a different definition of KMP under different permissible structures such as companies, limited liability partnerships and trusts. Further, ‘control’ refers to the right to exercise control over the management or policy decisions of the operator, whether directly or indirectly, through one or more persons acting individually or in concert.

- **Change in control:** NGP 2024 mandates requirement of a fresh authorisation by entities, in the event of any change in the management and control of an authorised entity or an equivalent change in the partnership or trust, resulting in the transfer of control to a non-Indian entity or entities, or if the authorised entity is no longer under Indian management and control. Further, authorised entities are required to notify IN-SPACe in the event of any change in shareholding pattern, any change in KMP, or any equivalent change in partnership or trust.
- **Data disseminators:** NGP 2024 permits only Indian entities to seek authorisation for dissemination of data, although the user of such data can be any individual, NGE, government entity or non-Indian entity. Further, authorised data disseminators are required to verify the credentials of the user prior to disseminating data and are required to undertake best efforts to ensure data is not re-disseminated.
- **Access to international orbital data:** In past years, satellite players in India were not allowed to use non-Indian orbital resources and only had access to Indian orbital resources. Through NGP 2024, India has permitted local satellite companies to use foreign orbital resources, thereby providing impetus to the satellite communications space. Indian players can now approach the ITU to use non-Indian orbital resources; however, an authorisation from IN-SPACe and compliance with

principles of non-interference and prevention of harmful interference are mandatory.

3.2 Principles of Non-interference and Prevention of Harmful Interference

India has demonstrated its commitment towards ensuring non-interference with activities of other space-faring nations and has introduced measures to prevent harmful interference with other spacecraft or space missions in its domestic framework.

In addition to being a signatory to international treaties including the Outer Space Treaty and the Liability Convention, India has been conscious of principles of non-interference and prevention of harmful interference in its space law framework as it has evolved over the years. The Draft Space Activities Bill 2017 propose to impose an obligation on entities engaged in space activities to avoid interference with the activities of other in the peaceful exploration and use of outer space.

More recently, NGP 2024 introduced non-interference and harmful interference as a critical parameter for IN-SPACE's evaluation in the granting of authorisations to entities for carrying out space activities. Particularly, in respect of space communication, an entity seeking authorisation for the establishment and/or operation of a satellite/constellation for communication services or establishment and/or operation of a remote sensing and amateur satellite system is mandatorily required to undertake a detailed interference analysis, along with an explanation of its strategy for coexistence for providing services over the intended area without harmful interference (unless a co-ordination/coexistence agreement with the relevant satellite system already exists, in which case, reference to such agreement can be made in the application). This interference analysis and strategy explana-

tion is further supplemented by an undertaking/declaration to be submitted by the operator to ensure interference-free services and no harmful interference to other satellite networks. Further, in cases of harmful interference, IN-SPACE reserves the right to intervene, to terminate, suspend or reject the granting of authorisation or to direct the operators to cease emissions.

It is relevant to note that through the introduction of such requirements under NGP 2024, India has adopted a proactive and precautionary stance as opposed to a reactionary stance towards non-interference and prevention of harmful interference, where the burden of justification lies with the space operators, prior to undertaking space activities.

3.3 Operators' Responsibilities

NGP 2024 imposes certain duties and responsibilities on the space operators including adhering to safety and security guidelines, and limiting space debris and adverse environmental impacts. In relation to the operation of space transportation systems, any establishment and operation of launch facilities by Indian entities requires an environmental clearance from the relevant authorities.

In addition to a submission of undertaking confirming compliance with the Space Debris Mitigation Guidelines of UN-COPUOS, the guidelines for satellites under NGP 2024 state that the design of satellites must take into consideration minimisation of debris creation both during the operational mission period and during passivation.

Further, prior to seeking registration of space objects, operators are required to specify the orbit for launch, after conducting an assessment on space environmental population, ie, the den-

sity of space objects in space. For operation of space transportation systems, in relation to the configurations of the launch vehicles, operators are required to submit debris (spent stages) related information. Further, as a post-registration compliance, immediately after launch of space objects, operators are required to report details of any impact on the space environment to IN-SPACe.

Therefore, NGP 2024 sets out a holistic checks-and-balances regime for mitigation of space debris at every stage, from design and configuration to launch and post-launch.

Separately, at the recently held annual meeting of IADC in Bengaluru, India announced its intent towards Debris Free Space Missions (DFSM), an initiative beginning in 2025 to ensure zero-debris space missions by 2030. The ISRO system for safe and sustainable space operations management (IS4OM) under DOS has been designated as the nodal agency supervising progress and implementation of DFSM. Notably, recently, the rocket launched under ISRO's XPOSat mission between January and March 2024 plunged into the ocean without leaving behind any space debris.

Earlier in 2019, ISRO also launched 'Project NETRA (Network for Space Object Tracking and Analysis)', an early warning system in space to detect debris and other hazards to Indian satellites, that aims to create greater space situational awareness.

4. Ownership of Extraterrestrial Resources

4.1 Nature of Space Resource Rights

In India, extraterrestrial resources are not considered the property of the nation/international community and/or finders/processors per se. However, a rights framework exists with respect to certain extraterrestrial resources.

For instance, under ISP 2023 certain orbital resources, ie, any GSO slot and/or NGSO along with the associated frequency spectrum and coverage acquired or in the process of being acquired by the Indian administration through a filing with the ITU, are categorised as 'Indian Orbital Resources'.

Further, ISP 2023 encourages NGEs/private entities to engage in commercial recovery of an asteroid resource or space resource. NGEs/private entities engaged in such a recovery process are entitled to possess, own, transport, use and sell the asteroid/space resource in accordance with the international obligations of India and other applicable law. In this approach, India has positioned itself similarly to the USA and Japan, which grant private entities rights to space resources.

4.2 Granting of Rights to Space Resources

Although ISP 2023 grants rights to space resources to private entities as discussed in 4.1 **Nature of Space Resource Rights**, NGP 2024 discourages Indian entities from asserting sovereign claims on the whole or a portion of outer space, including over resources extracted from space.

At the same time, NGP 2024 recognises that all forms of extraction and utilisation of space

resources do not amount to appropriation and, in an attempt to regulate the space, mandates Indian entities to obtain a separate authorisation from IN-SPACe prior to executing any plans to extract or utilise space resources. Such authorisation is subject to considerations including the necessity of undertaking such activities and the likelihood of them causing harmful interference to the space activities of other persons/nations. The authorisation process and timelines have been specified in **2.4 Role of the State in the Licensing Process for Space Activities**.

5. Environmental Protection and Impact on Climate Change

5.1 Environmental Protection in Space

India has undertaken and adopted a number of measures in relation to mitigation of adverse environmental impact and space debris (as discussed in detail in **3.3 Operators' Responsibilities**) which illustrate India's commitment to protection of the space environment. NGP 2024 prescribes that any dereliction of such responsibilities regarding the space environment by Indian entities may result in revocation/cancellation/withdrawal of the authorisation granted by IN-SPACe to such entity.

Further, the Indian State is obligated under the Constitution of India to endeavour to protect the environment of the country and has accordingly specified detailed regulations pertaining to protection of the environment.

To that end, it may be relevant to note that the Draft Space Activities Bill 2017 proposes that every person who causes damage or pollution to the environment of the earth, airspace or outer space including celestial bodies as a result of any space activity will be liable to imprison-

ment up to three years and/or with a fine of up to INR1,50,00,000 (approximately USD180,000). Although no such provision has been specified under ISP 2023/NGP 2024, taking into consideration India's proactive efforts on this front, it is likely that, going forward, future space-related legislations in India will include strict penalties in relation to environmental breaches.

5.2 Climate Change and Space Activities

Apart from the frameworks governing environment-related space activities as discussed in **5.1 Environmental Protection in Space** and **3.3 Operators' Responsibilities**, India currently does not have any specific legislation addressing climate change in relation to space activities. Having said that, it has undertaken several initiatives including satellite missions, independently and in collaboration with other countries, in this regard.

- India is at the frontier of the G20 SAT: Satellite Mission for Environment and Climate Observation, where India aims to provide spacecraft bus, satellite assembly, integration testing, etc for the launch of a satellite with payloads for environment and climate observations.
- In collaboration with NASA, in the latter half of 2024, ISRO plans to launch a radar satellite, NISAR, which will monitor the earth's changing ecosystems, dynamic surfaces and ice masses, in an effort to study the hazards of climate change.
- Further, India has set up a database titled 'National Information System for Climate and Environment Studies' (NICES) to monitor climate change. In 2022, ISRO conducted a workshop on space-based information support for climate and environmental studies under NICES, thereby expanding NICES for monitoring climate change in relation to space activities.

6. Taxation of Space Activities

6.1 Tax System for Space Activities

The taxation regime in India is multifaceted, comprising both direct and indirect taxes administered by the Union government and state governments. Broadly, the direct tax regime is governed primarily by the Union government and comprises income tax, corporate taxes and capital gains taxes. On the other hand, India's indirect taxes are levied on goods and services, under the Goods and Services Tax (GST) and other taxes such as customs duties, excise duties and various other social welfare contributions.

Direct Tax

There is no special tax regime for taxation of income derived from space activities in India. Consequently, the income derived from space activities would be taxable as per the general tax law in India in accordance with the Indian Income Tax Act, 1961 ("IT Act") and the rules contained therein. We have set out certain key considerations in this regard:

- The IT Act taxes Indian residents on their worldwide income and non-residents on income sourced from India. Note that certain tax benefits may be available for non-residents who are tax residents of a country with which India has entered into a tax treaty.
- Indian resident taxpayers are liable to pay tax on business profits, and tax rates differ on the basis of the legal status of the taxpayer. For non-residents earning income from business activities in India or by rendering services to Indian entities, taxability depends on the nature of the activities, the manner in which the activities/services are rendered, etc; ie, essentially, whether a taxable presence is created, ie, a business connection is established

or a permanent establishment (PE) is created in India.

- In the absence of a PE, non-resident Indians are liable to pay tax on royalties earned subject to withholding of tax in India at 20% and/or any tax treaty benefits. It is relevant to note that 'royalties' are defined broadly under the IT Act and include payments made for the right to use a piece of computer software; payments for the use of, or right to use, any industrial, commercial or scientific equipment; and payments made for transmission of signals by a satellite.
- Pertinently, the taxability of income derived by non-resident satellite companies for transmission of signals (which are ultimately used by consumers in India) has been subject to litigation in India, with the tax authorities alleging that it creates a PE in India and hence is taxable as business income. However, Indian courts have largely ruled in favour of such taxpayers by invoking the beneficial provisions under various tax treaties and have held that a satellite traversing across Indian territories cannot constitute a PE.
- Further, India also charges an equalisation levy on income derived by non-resident 'e-commerce operators' from 'e-commerce supply or services'.

Indirect Tax

The indirect tax regime in India is a transaction-based taxation regime, under which events such as import, export, supply (including sale, transfer, lease, etc) of goods and/or services are subject to the levy of duties and taxes.

Accordingly, the indirect tax regime vis-à-vis space activities would entail the levying of customs taxes/duties on a transaction entailing supply of any space products and/or components thereof (both on ground goods, such as launch

vehicles, and on objects meant for launch into space) and space activities (both upstream and downstream segments). As such, the import and export of space products and components are subject to customs duties, whereas local supply thereof and space activities (qualifying as supply of services) are subject to GST.

6.2 Tax Incentives for Space Investors

Currently, India does not have a central scheme/policy to incentivise private investments in the space sector, although certain tax incentives for enterprises engaged in space activities exist, as set out below.

- R&D expenditure incurred by taxpayers is tax deductible subject to satisfaction of certain conditions.
- Payments made for ‘satellite launch services’ are exempt from GST.
- In the context of space products and components, the existing customs framework grants exemption from customs duties for satellites, orbital launch vehicles, sub-orbital launch vehicles and components thereof (including boosters, payload fairing, adaptors and separation systems), satellite launchers, spacecraft, fuel and propellant tanks, and safety systems. Similarly, the local supply of such space products and components is exempt from GST.
- Import and local supply of specific functional accessories of such space products, ie, radars, satellite networking equipment, satellite communication terminals, radio frequency equipment, tracking systems, communication terminals (modems and routers), scientific instruments and sensors (including cameras and magnetometers), are subject to a concessional rate of customs duties and GST respectively.

Further, ISpA has made representations to the Indian government regarding various tax exemptions to boost the space industry. Such representations include wider GST exemptions for space activities, tax holidays for enterprises engaged in the space sector, a concessional tax rate for interest paid on external commercial borrowings, subsidies on capital investments, etc.

Notably, the state governments of Telangana and Karnataka, being the hub of space-related activities in India, have announced financial incentives such as subsidies and reimbursements of capital costs incurred by space tech companies. As part of the incentive package, the state governments have promised reimbursement of a certain portion of the local taxes and duties (levied by the respective state governments) incurred by the space tech companies for their business operations in these states.

6.3 Taxation on Sale or Transfer of Space Assets

Under the direct tax regime in India, the taxability of the sale or transfer of space assets would be governed under the IT Act and would depend on whether such assets are ‘business assets’ or ‘capital assets’.

Under the indirect tax regime, the existing GST framework recognises various space activities and seeks to levy tax thereon as supply of service. Notably, upstream space activities, ie, freight services (ie, carriage of satellite and other payloads) and satellite launch services are exempt from GST. However, activities relating to manufacturing and development of such engineering services with respect to space assets, maintenance and repair of satellite vehicles and launch vehicles are subject to GST. Further, downstream activities including Positioning, Navigation and Timing (PNT) applications, ser-

vices, research and experimental development services, geological and geophysical consulting services, mineral exploration and evaluation, weather forecasting and meteorological services, etc are also subject to GST.

Currently, the corresponding tax policy around some of the activities contemplated for the private sector, ie, passenger carriage, launch pad management for transportation, insurance for space assets and operations, is not specifically encompassed within the existing tax framework. However, with the release of ISP 2023 and NGP 2024, the government intends to adapt the tax framework to include such space activities.

Space products and components are considered sensitive goods and are a matter of national security. Accordingly, the export of identified space objects and technologies related thereto is regulated and requires authorisation from the Directorate General of Foreign Trade, the nodal agency for trade-related regulations and enforcement in India.

7. Investment and Financing in Space Activities

7.1 Impact of “NewSpace”

Over the last five years, India has seen a significant transformation in the Indian space sector characterised by democratisation of space and liberalisation of the sector to encourage entry of private stakeholders.

Drivers of NewSpace in India: Notably, there has been an exponential rise in the participation of NewSpace companies and startups driven by regulatory reforms including the Indian Space Policy 2023 and NGP 2024, financial investments, recently introduced FDI reforms (as

discussed in 7.4 **Foreign Investment in Space Activities**), international collaborations for facilitating technology exchange, transfer and research and development. Tangibly, the number of space tech startups has seen a jump from one in 2014 to around 189 as of December 2023.

Segmentation of NewSpace in India: Today, the activities of NewSpace actors in India have seen a shift from traditional space activities towards more segmented activities including upstream, downstream and auxiliary activities.

- *Upstream activities:* Involve satellite manufacturing, launch services and space transportation. Satellite miniaturisation, ease of access, and low-cost and improved global supply chains constitute key drivers of the upstream segment.
- *Downstream activities:* Involve application of space data towards communication, navigation, earth observation services, etc. Enhanced computational capabilities, demand for global connectivity and government focus on use of space for SDGs constitute key drivers of the downstream segment.
- *Auxiliary activities:* Involve space insurance, education and training programmes, etc. Increased commercialisation, collaborations, technology transfers, etc constitute key drivers of the auxiliary segment.

Investment scenario and forecast: Such diversification of capabilities by NewSpace actors has attracted significant venture capital investments. In the NewSpace era, Indian space tech startups have raised over USD250 million. Companies that have received venture capital funding over the last couple of years are in advanced stages of their operations, with certain companies setting up their manufacturing plants and planning

launches in the next few years. This is likely to result in a significant increase in their valuations.

Admittedly, financial investors in the sector are very bullish, and a number of new-age private entities raised significant amounts of early-stage/growth capital in the year 2023. In fact, it is anticipated that, in 2024, funding by space tech companies will surpass previous benchmarks and lead to supercharged growth in the activities and operations of companies engaged in this sector. Further, the opening up of the FDI space is likely to encourage local investments in the space sector. As an estimate, the Indian government believes that India's space economy will soar to USD40 billion by 2040.

7.2 Finance Sources for Space Activities

Government funding: Given that the space sector in India was largely government-dominated for five decades, funding from the government constituted one of the main sources of finance for space activities. DOS, as the nodal space department, was allocated funds from the Union Budget of India for space programmes, satellite launches, infrastructure development and other research and development activities. Further, in addition to government funding, DOS also generates revenue through its commercial arms, ACL and NSIL, engaged in marketing and commercial space activities.

Private investments: In the last few years, with the onset of NewSpace, private investments including from venture capital firms, private equity investors, incubators, accelerators, etc have played a large role in the growth of the space startups ecosystem, although limited to equity funding and generally at an early stage. During March-December 2023, space startups have attracted investments worth USD124.7 million.

Other government initiatives: Separately, government initiatives such as IN-SPACE's recent SEED Fund Scheme to provide INR1 crore/USD121,000 to space startups alongside mentorship and training support, have added to the sources of financing available in India.

Subsidiaries/joint ventures for foreign entities: Notably, NGP 2024 mandates foreign entities desirous of engaging in space activities in India to incorporate an Indian subsidiary or enter into a joint venture or other such collaboration arrangements with Indian entities to seek authorisations from IN-SPACE, thereby encouraging foreign investments in the space sector in the form of subsidiaries and joint ventures.

7.3 Attracting Investment for Space Activities

Enhanced private participation: With the introduction of ISP 2023, NGEs/private entities were permitted to engage end-to-end in all domains of the space actor, attracting investment from several investors including Alphabet Inc, which invested USD36 million in a Bengaluru-based satellite imaging startup, Pixxel.

Regulatory reforms: Recent government, legislative and policy reforms have steered towards attracting greater investments in space activities. Arguably, the regulatory regime is still unclear on certain aspects; however, with the release of NGP 2024, there now exists higher regulatory clarity on various aspects and activities in the space sector. Further, efforts by ISRO towards the granting of governmental contracts to private entities have offered investors much-needed assurance, thereby facilitating capital investments even amidst the regulatory flux.

Tax incentives: The Indian government's efforts towards providing tax incentives as outlined in

6.2 Tax Incentives for Space Investors make India a key destination for investors in the space sector.

Infrastructure: India has a robust foundation of launch space infrastructure, and ISRO provides access to its testing facilities, infrastructure and expertise, all of which form key attractions for investors.

7.4 Foreign Investment in Space Activities

Historically, the Indian space sector was restricted and predominantly controlled and operated by the government. In 2020, the Indian foreign direct investment policy (“FDI Policy”) in the space sector was amended, and certain reforms were introduced, to encourage private sector participation in the ‘establishment and operation of satellites’ sector. However, such investments were permitted only under the government approval route.

More recently, in 2024, the Indian government approved amendments to the FDI Policy, further liberalising the sector and providing impetus to its growth in India. The amendments allow for foreign direct investments under the automatic route (where no government approval is required) to varying degrees, and subdivisions/subsectors have been created for underlying activities within the larger sphere of ‘establishment and operation of satellites’. The entry routes for the various activities under the FDI Policy are categorised follows:

A. Up to 100% under automatic route – manufacturing of components and systems/subsystems for satellites, ground segment and user segment;

B. Up to 74% under automatic route – satellite manufacturing and operation, satellite data products and ground segment and user segment; and

C. Up to 49% under automatic route – launch vehicles and associated systems or subsystems, creation of spaceports for launching and receiving spacecraft.

Note that investments beyond 74% under category B and beyond 49% under category C require prior approval of the relevant sectoral regulator under the government route.

In addition to this, any foreign direct investment from any countries that share a land border with India (ie, Pakistan, China, Bangladesh, Bhutan, Afghanistan, Nepal and Myanmar) requires prior government approval.

7.5 Role of Securities Markets in Space Financing

The role of securities markets in financing space activities in India is yet to mature. Given the nascentcy of NewSpace actors, public offerings/trading of securities in public markets vis-à-vis space companies will have its gestation period in India and we anticipate that Indian space tech companies will list on the stock exchanges in the coming few years.

Having said that, there exist certain conglomerates that are listed companies and have diversified their investments and ventured into the space sector including Bharti Enterprises Limited, Larsen & Toubro Limited, Hindustan Aeronautics Limited and Apollo Micro Systems. As specified in **2.6 Role of the State in the Launching Process**, these private entities have ably supported ISRO and other public sector enterprises in relation to their space-related activities

and have contributed to development of Indian launch vehicles and space missions.

At present, the activities of this group of companies constitute the limited role that the securities market in India plays in the space sector. However, with the advent of new technologies and liberalisation of the FDI Policy, it is expected that the securities market will contribute to the financing of space activities in a significantly larger manner.

Trends and Developments

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Khaitan & Co

Khaitan & Co was founded in 1911 by Late Debi Prasad Khaitan, and is among India's oldest and most recognised full-service law firms. Built on foundations of integrity, simplicity, dedication and professionalism, the firm's presence is in Kolkata (1911), New Delhi (1970), Bengaluru (1994), Mumbai (2001), Singapore (2021), Pune (2023) and Ahmedabad (2024). The firm services clients across all practice areas including foreign direct investments, M&A, private equity and venture capital investments, regula-

tory, corporate and commercial, data privacy, disputes, tax, intellectual property, telecommunications, media and technology, employment, etc. Khaitan & Co is firmly placed to provide the best legal, regulatory and commercial advice to companies engaged in the space tech sector, given its expertise in diverse areas and sectors of law. As a full-service law firm, it brings a wealth of knowledge and experience across sectors and areas, and is ably placed to provide high-quality service to its clients.

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On 10 August 2023, the Government of India (“GoI”) introduced the Indian Space Policy – 2023 (“Policy”) to augment the capabilities of companies involved in the space sector and provide a regulatory framework. The Policy outlines the vision, strategy and guidelines for enhancing the participation of non-government entities (NGEs) across the entire value chain of the space economy, thereby shifting the current supply-driven space economy to a demand-driven model. With the aim of revolutionising the space sector by enhancing the participation of NGEs, fostering innovation and providing a robust regulatory framework, the Policy is intended to be a positive catalyst and act as the rocket fuel for the rapid development and growth of India’s space sector. At its core, the Policy envisions augmenting India’s space capabilities, driving technological innovation and leveraging space for socio-economic development. To achieve this vision, the Policy adopts a multifaceted strategy, by providing regulatory certainty to actors involved in the space sector and providing measures for encouraging advanced research and development, providing public goods and services using space technology, creating a stable regulatory framework, promoting space-related education and innovation, and using space as a driver for overall technology development.

The Policy delineates the roles and responsibilities of four important entities that play crucial roles in implementing the policy, ensuring compliance, fostering industry growth and promoting international co-operation. The four entities that have been handed the baton for implementation of the Policy under the aegis and supervision of Department of Space (“DoS”) are: (i) the Indian Space Research Organisation (ISRO), responsible for research and development; (ii) NewSpace India Limited (NSIL), a public sector enterprise in the space sector, responsible for supplement-

ing the demands of the industry; (iii) the Indian National Space Promotion and Authorisation Centre (“IN-SPACE”), the sectoral regulator, which acts as the interface between ISRO and NGEs; and (iv) the Department of Telecommunications (“DoT”), responsible for management of space activities utilising radio spectrum. In addition to these entities, the DoS is responsible and acts as the nodal department for implementation of the Policy and oversees the distribution of responsibilities outlined in the Policy.

IN-SPACE, an autonomous single-window nodal agency within the DoS, was set up in June 2020 with a mandate to authorise all space activities undertaken by the GoI and NGEs in the country. IN-SPACE acts as the promoter, enabler, authoriser and supervisor of the Indian space ecosystem, and was inaugurated and operationalised in June 2022 to regulate the space sector and supervise private enterprises and startups to undertake space activities.

IN-SPACE’s primary responsibility is to authorise various space activities, such as building of launch vehicles, satellites, payloads, establishing ground stations and data dissemination. IN-SPACE is also responsible for identifying technologies developed by ISRO and facilitating transfer of technology from ISRO to private industries, in accordance with the Policy.

In furtherance of its mandate, on 4 May 2024, IN-SPACE released ‘Norms, Guidelines and Procedures for Implementation of the Indian Space Policy-2023 in respect of Authorization of Space Activities’ (NGP) by Indian entities.

Authorisation Requirements

The NGP prescribes the authorisation requirements for Indian entities engaged in the space sector and undertaking space activities. It

requires every entity carrying out space activity to or from Indian territory or within the jurisdiction of India to seek authorisation from IN-SPACE. The NGP permits a wide array of space activities including launch, operation, guidance and/or re-entry of any space object. Key activities that require authorisation from IN-SPACE are:

- establishment and/or operations of space object(s), including space-based communication services, remote sensing and amateur satellite systems, hosted payloads, establishment and/or operation of space objects other than communication and remote sensing satellite systems;
- operation of space transportation systems, including sub-orbital and/or orbital launches from Indian territory and/or outside the territory of India;
- planned re-entry of space objects with or without recovery;
- establishment and/or operation of the ground systems, including satellite control centre;
- dissemination of space-based earth observation/remote sensing data, including high-resolution space-based earth observation/remote sensing data pertaining to Indian territory; and
- sale/purchase/transfer of space objects in orbit.

Entities Eligible for Authorisation

Only Indian entities, both government entities and NGEs, are permitted to seek authorisation under the NGP. Non-Indian entities that wish to operate in the Indian territory can seek authorisations through Indian entities under the NGP. An indicative list of permissible corporate structures, including subsidiaries, joint ventures, partnerships or trusts, for an arrangement between an Indian entity and a non-Indian entity are set out under the NGP. However, for certain activi-

ties such as communication services and the dissemination of space-based earth observation and remote sensing data, non-Indian entities can seek direct authorisation from IN-SPACE.

Process of Authorisation

The NGP provides for a dedicated portal for application to seek authorisation from IN-SPACE at IN-SPACE Digital Platform (IDP). In order to seek authorisation from IN-SPACE, the Indian entity must be managed and controlled by Indian citizens with majority of the Key Managerial Personnel (KMP) holding Indian citizenship. It is relevant to note that the NGP provides for a different definition of KMP under different permissible structures. For companies incorporated under the (Indian) Companies Act, 2013, KMP includes the Chief Executive Officer (CEO), managing director, manager, company secretary, whole-time director, Chief Financial Officer (CFO), Chief Operating Officer (COO) and other officers as prescribed by the Companies Act or IN-SPACE. For partnership firms under the (Indian) Limited Liability Partnership Act, 2008, KMP includes partners and designated partners, as well as the Chief Managing Director (CMD), CEO, CFO, COO or equivalent. For trusts under the Indian Trust Act, 1882, KMP includes the author, trustees, CEO, CMD, CFO, COO or equivalent.

However, in all cases, 'control' refers to the right to exercise control over the management or policy decisions of an applicant, whether directly or indirectly, through one or more persons acting individually or in concert. This includes the right to appoint the majority of directors or KMP, or to control management or policy decisions through shareholding, management rights, shareholders' agreements, voting agreements, partnership agreements, confidence of trust or any other means.

While the application form mandates varying levels of compliance and disclosure based on the proposed activity to be undertaken, the common denominator is the requirement of financial and technical credentials, and operational, infrastructural and technical capabilities in relation to the activity proposed to be undertaken by the applicant. Applicants must also disclose their net worth, significant beneficial owners (if any) and criminal records (if any), and obtain security clearance (if sought by IN-SPACE).

Duties of the Applicant

The NGP imposes certain duties on the applicants, and dereliction of these duties may result in revocation of the authorisation by IN-SPACE. These duties include adhering to safety and security guidelines, limiting space debris and adverse environmental effects, complying with liability policies, providing necessary information to IN-SPACE, notifying IN-SPACE of any changes or incidents, refraining from asserting sovereign claims on outer space, and complying with all terms and conditions of the authorisation.

Space-Based Communication

The NGP also meticulously regulates space-based communication services to ensure compliance and efficiency within the burgeoning industry. Chapter IV of the NGP emphasises the necessity for authorisation, mandating that any satellite or constellation, whether owned by an Indian or non-Indian entity, seeking to provide communication services over Indian territory or beyond must obtain explicit permission for establishment and operation.

Indian entities are accorded the opportunity to seek authorisation for their own satellites or constellations, regardless of whether they are self-realised, procured, or acquired in orbit, using either Indian or non-Indian orbital resources.

Additionally, non-Indian entities intending to provide satellite communication services within Indian territory are required to obtain authorisation through IN-SPACE. Once authorised, Indian service providers and users are obligated to exclusively utilise the services of satellites or constellations approved by IN-SPACE. Furthermore, the regulatory framework places the onus of bearing the risks and costs associated with space-based communication services solely on the service providers and users, precluding any recourse against governmental agencies such as IN-SPACE or the DoT. These regulations aim to foster a regulated environment that promotes responsible utilisation of satellite resources while upholding national interests and international standards.

Operation of Space Transportation Systems

Any Indian entity planning an orbital or sub-orbital launch of a space transportation system, regardless of ownership status (self-owned or leased launch facility), must obtain authorisation from IN-SPACE in accordance with the NGP. Similarly, non-Indian launch operators must also seek authorisation through an Indian entity. Authorisation is specifically required for sub-orbital launches with a total impulse of 40,960 newton-seconds or more at lift-off.

Prior to launch, the launch operator is obligated to comply with the applicable Space Debris Mitigation Guidelines as established by the Committee on the Peaceful Uses of Outer Space, 2007 (UN-COPUOS). Additionally, adherence to the Guidelines and Procedures for Registration of Space Objects and the framework for safe and sustainable space operations provided by DoS is mandatory.

Detailed information about the launch mission, including various failure scenarios, the proba-

bilities of those failures, fragmentation patterns, reliability values, and identification of impact and danger zones, must be furnished for technical assessment by IN-SPACE. Authorisation for each launch is granted by IN-SPACE through an expert committee after thorough evaluation of these technical parameters. To ensure safety, an 'Advisory Note' from IN-SPACE is required for every launch, in order to ensure that the 'notice to airmen' (NOTAM) and navigational area (NAV-AREA) warnings on the danger zones are issued as an alert by the relevant authorities, at least 45 days prior to a launch. The responsibility to confirm the issuance of relevant NOTAMs and NAVAREA warnings and manage them till and after the launch is on the applicant. IN-SPACE sets specific time frames within which launches must occur, and any alterations to those time frames or modifications to the danger zone require updated authorisation from IN-SPACE.

Guidelines for the Utilisation of Orbital Resources

The NGP mandates collaboration between IN-SPACE and the Wireless Planning & Coordination Wing of the DoT (WPC) to identify unutilised co-ordinated/allotted orbital resources or unused International Telecommunication Union (ITU) filings and allocate them to Indian entities. Resources earmarked for government-approved satellites or undergoing government approval are exempt from allocation.

An Indian entity can utilise orbital resources in the following three ways: (i) it can use the unutilised co-ordinated/registered ITU under Indian administration for unutilised ITU allotted/assigned to Indian administration; (ii) it can use unutilised ITU filings that are in the co-ordination stage under Indian administration; or (iii) it can also apply for a fresh ITU filing under Indian administration through WPC. It is relevant to note that in order

to apply for any of the above three categories, an authorisation from IN-SPACE is required.

IN-SPACE, in collaboration with the DoT, determines base prices and other financial terms for resource allocation. Decisions made by IN-SPACE regarding selection of beneficiaries are binding. Upon selection, beneficiaries receive an 'Advisory Note' from IN-SPACE granting permission to utilise the allocated resource. However, this note does not confer spectrum rights or authorisation to establish and/or operate the space object.

WPC and IN-SPACE oversee progress in completing various tasks such as co-ordinating with other administrations/satellite operators and registering satellite network filings. Failure to make satisfactory progress within the allocated time frame may lead to cancellation or revocation of the orbital allocation.

If applicants wish to relinquish or surrender the ITU filing, they must communicate their progress, along with timelines and reasons, to IN-SPACE. IN-SPACE may then reallocate these relinquished/surrendered resources at its discretion. Alternatively, applicants may transfer/sublet the ITU filing or frequency assignment to another Indian entity, subject to approval from IN-SPACE and meeting other relevant criteria.

Following deployment of the satellite in orbit and its successful registration in the Master International Frequency Register (MIFR), the applicant retains the right to utilise the orbital resource/frequency assignment as long as it operates the satellite. These provisions and procedures also apply in situations where an Indian entity brings the operations of a non-Indian satellite into the ITU filing/satellite network through IN-SPACE authorisation.

Registration of Space Object

The NGP defines “space object” to include any object launched or intended to be launched into an orbital or sub-orbital trajectory around the earth or to a destination beyond earth orbit, any constituent element of such an object, or any other object as notified by IN-SPACe from time to time (“Space Object”). The registration of Space Objects in the Indian national register of space objects is mandated under the NGP, given the international obligations on the Gol under the various treaties and conventions, that impose liability on the state for any space objects launched from its jurisdiction.

The eligibility criteria for registration include ownership and control of the Space Object by an Indian entity, and the consent of both the Indian and non-Indian entity in the case of a subsidiary/joint venture/franchise/partnership. The registration process involves pre-registration and post-registration procedures, including evaluation of information for correctness, consistency, and compliance with space debris mitigation requirements. Operators are required to report certain events and provide periodic updates on their space activities. Any plan for mission life extension must be submitted to IN-SPACe with necessary inputs no later than six months before the end of life, and the application for an extension of mission would be dealt with on a case-by-case basis based on the inputs provided.

Liability

The liability of Indian entities, foreign entities and the Gol is determined by the damage caused by their Space Object or its component parts to any other Space Object or property, or to any person, including third parties. The NGP mandates all entities engaged in space activities to procure a third-party liability policy, and Indian entities are additionally required to comply with

the guidelines included in the NGP, as well as the Convention on International Liability for Damage Caused by Space Objects, 1972 (“Liability Convention”).

Further, the NGP mandates every launch service agreement/launch contract between a launch operator and a non-Indian entity, for any space launches being undertaken by Indian entities, to include a specific clause transferring the third-party liability arising due to such Space Objects to the respective non-Indian entity. The NGP also provides that any loss, damage, cost, fees or other expenses incurred by IN-SPACe or the Gol or its agencies under the Liability Convention or otherwise that are attributable to an authorised entity are recoverable from such authorised entity.

Our Comments

For the first seven decades of India’s independence, India took great strides in the development and promotion of space activities through public sector initiatives. However, due to the absence of a national legislation pertaining to the space sector in India and the consequent regulatory uncertainty, it was difficult for NGEs and non-Indian entities to contribute to the growth of the space sector. In this context, the launch of IN-SPACe and the NGP has provided the much-needed regulatory clarity and predictability to private sector entities willing to participate in such a sensitive sector as space. Under the NGP, IN-SPACe has taken significant steps to promote Indian entities engaged in the space sector and recognise various options for structuring the arrangement between Indian and non-Indian entities.

With provisions setting out exemptions based on specific cases and mechanisms for dispute resolution and international collaboration, the

Policy sets the stage for India to emerge as a global leader in space exploration and utilisation. In addition to this, the Govt has also recently liberalised its Foreign Direct Investment (FDI) norms in a move to attract foreign investments in the space sector and has now permitted foreign investments in Indian entities engaged in this sector, subject to certain limitations, that have been created based on subclassification of the activities undertaken by those entities. These investments, collaborations and partnerships with global entities will also provide Indian entities the global expertise and knowledge of established market players, which is likely to aid in the rapid development and growth of Indian entities.

While the NGP prescribes clear guidelines pursuant to which authorisations will be granted under the Policy, it is important to note that the NGP grants authorisation with a validity period, and the authorised entity must seek a separate authorisation from IN-SPACe to conduct the space activity beyond the validity period or to expand the scope of its services. If the authorised entity decides to unilaterally discontinue, terminate or withdraw the provision of services partially or fully during the validity of the authorisation without prior notice or for reasons not justifiable to IN-SPACe, then IN-SPACe reserves the right to immediately terminate the authorisation and impose financial penalties.

In order for India to become a global hub and leader in this sector, the NGP definitely provides a much-needed impetus to private entities. That said, India and its regulatory authorities should aim to relieve themselves of their protectionist measures such that the growth of the space sector is not impaired due to over-regulation.

For example, the NGP mandates that in case of any change in the management and control of an authorised entity or an equivalent change in the partnership or trust, resulting in the transfer of control to non-Indian entity/entities, or if the authorised entity is no longer under Indian management and control, a fresh authorisation shall be required to be obtained by such entities. Moreover, the NGP mandates certain post facto notifications to IN-SPACe and requires authorised entities to notify it in case of any change in shareholding pattern, change in KMP, or equivalent changes in partnership or trust. While these requirements are in line with the government's policy of promoting indigenous space capabilities and ensuring that the country's strategic assets are not compromised, such requirements are likely to add to the compliance burden of entities engaged in this sector and may have a drastic impact (such as revocation of the authorisation) on any slip-ups. All authorised entities under the NGP should therefore ensure compliance with the NGP and create specific processes for ensuring that they meet the stringent requirements under the NGP.

The establishment of IN-SPACe and release of the NGP has propelled the growth of the Indian space sector and is likely to set out a clear path to the stars for the Indian space economy. To ensure that the developments in this sector are not marred by or face debris on its journey, the regulators and IN-SPACe will have to be nimble and receptive to the needs of market participants. However, these actions are a right step in India's direction and path towards the stars, and will hopefully lead to India being recognised as a global superpower in the space economy of the world.

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