PRIVATISING SPACE, SOCIALISING LIABILITY? RETHINKING INDIA'S LIABILITY FRAMEWORK FOR COMMERCIAL SPACE ACTIVITIES

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ABSTRACT

India's commercial space sector is developing within a liability framework still centred on State responsibility under international law. The Indian Space Policy 2023 and IN-SPACe's 2024 authorisation framework transfer substantial financial risk to private operators through insurance and indemnification. Yet the relationship between insured amounts, operator liability and governmental exposure remains unsettled. This paper argues for a statutory three-layer model comprising risk-based operator insurance, governmental assumption of defined catastrophic excess liability, and unlimited recourse for aggravated operator misconduct. Comparative methodology from the United States, United Kingdom, Australia and France is used to propose an Indian framework capable of allocating commercial space risk with greater certainty.

Keywords: Space Liability, IN-SPACe, Commercial Space Activities, Liability Convention, Third-Party Liability Insurance, India.

I. Introduction

India's space programme developed within an institutional structure dominated by the State. The Indian Space Research Organisation conceived missions, developed launch systems, operated satellites and exercised substantial control over the infrastructure through which Indian space activity was conducted. The relationship between operational activity and State responsibility was therefore relatively direct. The entity controlling the activity ultimately formed part of the same governmental structure that carried India's international obligations.

The reforms initiated since 2020 have altered this arrangement. The Indian Space Policy 2023 formally enables Non-Government Entities, or NGEs, to undertake activities across the space value chain. Private entities can establish and operate space objects, launch vehicles, launch infrastructure, telemetry facilities and satellite systems, and may participate in space exploration and other commercial activities subject to authorisation by the Indian National Space Promotion and Authorisation Centre, or IN-SPACe.[1] The policy is designed around a larger commercial objective of shifting parts of India's space economy from direct State performance towards regulated private participation. The liberalisation of foreign direct investment in the space sector in 2024 reinforces this transition by permitting higher levels of foreign investment in satellite activities, launch vehicles, spaceports and component manufacturing.[2]

The commercial structure of Indian space activity has consequently changed. The international legal allocation of responsibility remains anchored in treaties drafted during a period when governmental space programmes dominated global activity. Article VI of the Outer Space Treaty places international responsibility upon States for national activities in outer space, including activities conducted by non-governmental entities. It also requires the activities of such entities to receive authorisation and continuing supervision from the appropriate State.[3] Article VII establishes liability connections based upon launching, procuring a launch and providing territory or facilities for a launch.[4] The Liability Convention of 1972 develops this arrangement by imposing absolute liability upon a launching State for damage caused on the

[1] Dep't of Space, Gov't of India, *Indian Space Policy 2023* §§ 4–5, at 6–9 (2023).
[2] Dep't for Promotion of Indus. & Internal Trade, Ministry of Com. & Indus., Gov't of India, Press Note No. 1 (2024 Series), *Review of Foreign Direct Investment (FDI) Policy on Space Sector* (Mar. 4, 2024).
[3] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies art. VI, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].
[4] *Id.* art. VII.

surface of the Earth or to aircraft in flight and a fault-based standard for damage caused elsewhere.[5]

A privately controlled Indian mission can therefore generate international financial exposure for India. The private entity may own the technology, receive the commercial benefit and exercise operational control, while a claim under international space law may arise against the Indian State. Commercialisation separates the economic actor from the subject carrying treaty responsibility.

India has already recognised the resulting liability problem. The Indian Space Policy 2023 directs IN-SPACe to prescribe guidelines addressing liability arising from potential damage caused by space activities.[6] The Norms, Guidelines and Procedures for Implementation of the Indian Space Policy 2023, issued by IN-SPACe in 2024, or "NGP 2024", go considerably further. They acknowledge the possibility that a launching State may face unlimited third-party liability, permit IN-SPACe to prescribe third-party liability insurance for launch operators, require the Government of India to be included as an insured entity in relevant circumstances, and create indemnification and recovery obligations against authorised applicants.[7]

This administrative structure provides the foundation of an Indian commercial space liability regime. It also exposes an unresolved question. NGP 2024 provides that the insurance amount for launches from Indian territory will be capped at a value prescribed by IN-SPACe.[8] Its standard authorisation conditions simultaneously provide that losses incurred by the Government under the Liability Convention or otherwise, where attributable to the applicant, may be recovered from the applicant "in full".[9] An insurance ceiling and a liability ceiling perform distinct functions. The former establishes how much insurance an operator must purchase. The latter establishes the maximum financial loss ultimately borne by that operator. A commercial entity can satisfy its prescribed insurance requirement and still face substantially greater recourse if the liability itself remains uncapped.

[5] Convention on International Liability for Damage Caused by Space Objects arts. II–III, Mar. 29, 1972, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].
[6] Dep't of Space, supra note 1, § 5(18), at 9.
[7] Indian Nat'l Space Promotion & Authorization Ctr., *Norms, Guidelines and Procedures for Implementation of Indian Space Policy-2023 in Respect of Authorization of Space Activities*, Doc. No. IN:ISP2023/V1.0, ch. X, at 58–61 (May 3, 2024) [hereinafter NGP 2024].
[8] *Id.* at 58.
[9] *Id.* at 87.

The issue has gained additional importance because India continues to operate without comprehensive parliamentary legislation governing commercial space activity. In March 2026, the Department-related Parliamentary Standing Committee on Science and Technology, Environment, Forests and Climate Change observed that Indian space activities were still guided largely by policies, vision documents and mission guidelines. It welcomed the Department of Space's work on legislation intended to regulate space activities.[10] The forthcoming legislation creates an opportunity to resolve the relationship between State liability, operator insurance and governmental assumption of exceptional loss.

Existing Indian scholarship has already identified the need for a liability-sharing system. Pratap, Gupta and Pathak argued in 2023 for a tailored framework balancing commercial development with protection of the public exchequer.[11] Gupta and Raju have separately examined the interaction between commercial space activity and the State-centred international liability regime.[12] The regulatory setting has since developed. NGP 2024 now contains an operative administrative model. The research question has therefore moved from whether India requires liability rules to how the rules already emerging through IN-SPACe should be converted into a coherent statutory architecture.

This paper proposes a three-layer model. A commercial operator should first bear a mission-specific layer of liability supported by compulsory insurance or approved financial security. Defined catastrophic losses above that layer should fall within a statutory governmental guarantee, subject to a further ceiling and legislative safeguards. Where damage results from wilful misconduct, gross negligence, fraud, serious regulatory violations or unauthorised activity, the operator should lose the benefit of the liability limitation. Such a structure can align private operational control with financial responsibility while recognising the exceptional character of low-frequency, high-consequence space risks.

[10] Dep't-Related Parliamentary Standing Comm. on Sci. & Tech., Env't, Forests & Climate Change, Rajya Sabha, *410th Report on Demands for Grants (2026–27) of the Department of Space* ¶ 93 (2026). The Committee recorded in March 2026 that Indian space activity continued to lack a comprehensive legislative framework and that the Department was drafting legislation to regulate the sector.

[11] Kunwar Surya Pratap, Biswanath Gupta & Lavanya Pathak, *Liability Risk Sharing Framework for Commercial Launch Industry in India*, 21 **Astropolitics** 63, 63–92 (2023).

[12] Biswanath Gupta & Raju K.D., *Understanding International Space Law and the Liability Mechanism for Commercial Outer Space Activities: Unravelling the Sources*, 75 **India Q.** 555, 555–78 (2019).

II. International Space Law and the Location of Liability

The starting point of any Indian framework is Article VI of the Outer Space Treaty. It provides that States Parties bear international responsibility for national activities in outer space regardless of whether those activities are conducted by governmental agencies or non-governmental entities.[13] Private commercial activity therefore remains connected to India through public international law. The authorisation and continuing supervision requirement also gives the State an enduring regulatory role. Issuing permission at the commencement of an activity cannot exhaust this obligation where the operation continues in orbit for several years.

Responsibility under Article VI should be distinguished conceptually from liability under Article VII and the Liability Convention. Responsibility concerns conformity of national space activities with international obligations. Liability concerns the financial consequences of specified damage associated with a space object. Commercial regulation has to account for both. Authorisation and continuing supervision address the former, while insurance, indemnification and compensation mechanisms primarily respond to the latter.

Article VII of the Outer Space Treaty provides that a State which launches or procures the launching of an object into outer space, and a State from whose territory or facility an object is launched, is internationally liable for damage caused by that object.[14] The Liability Convention adopts the concept of the "launching State" and defines it by reference to these connecting factors.[15] A single commercial mission can therefore produce more than one launching State.

That possibility is increasingly relevant to private space operations. An Indian satellite may be owned by an Indian company, launched aboard a foreign launch vehicle from the territory of another State and later controlled from India. A foreign satellite may be launched by an Indian private launch provider from Indian territory. A launch vehicle could itself be operated by an Indian entity from infrastructure outside India. Commercial arrangements can distribute contractual risk among the participants, though those arrangements do not independently rewrite the treaty position of States that qualify as launching States.

Article V of the Liability Convention provides for joint and several liability where two or more

[13] Outer Space Treaty, supra note 3, art. VI.
[14] *Id.* art. VII.
[15] Liability Convention, supra note 5, art. I(c).

States jointly launch a space object. It also permits participating States to conclude agreements regarding the apportionment of their financial obligations.[16] The treaty consequently anticipates a distinction between the external claim and the internal distribution of financial responsibility. A similar distinction should inform Indian domestic legislation. India's international exposure can remain determined by treaty law while domestic legislation allocates the resulting financial burden among the Government, operator and insurer.

The standard of liability also changes according to the location of the damage. Article II makes a launching State absolutely liable for damage caused by its space object on the surface of the Earth or to aircraft in flight.[17] A claimant State therefore need not prove fault for damage falling within this provision. Article III governs damage caused elsewhere than on the surface of the Earth to another launching State's space object or persons or property aboard it. Liability in that situation depends upon fault or the fault of persons for whom the launching State is responsible.[18]

The division reflects the different character of terrestrial and orbital risks. Members of the public on the ground have no meaningful control over the hazard created by a launch or re-entering space object. In-orbit actors, by comparison, operate within a shared technical environment in which manoeuvres, tracking information, collision warnings and operational decisions may all influence the event.

The modern orbital environment makes Article III increasingly difficult to apply. The Liability Convention contains no detailed definition of fault. An orbital collision might involve inaccurate orbital data, failure to respond to a conjunction warning, delayed manoeuvring, loss of command, deficient debris mitigation or competing assessments of collision probability. Autonomous decision-making could add another layer of complexity. Determining fault therefore requires domestic regulatory standards capable of identifying the conduct expected of an authorised operator.

The United Nations General Assembly's 2013 recommendations on national space legislation recognised the importance of this domestic layer. States were encouraged to consider conditions governing recourse against operators, insurance requirements and the procedures

[16] *Id.* art. V.
[17] *Id.* art. II.
[18] *Id.* art. III.

through which compensation could be recovered.[19] The international regime places the State at the centre of the claim. National law decides who ultimately finances the State's exposure.

III. India's Commercial Transition and the NGP 2024 Framework

The Indian Space Policy 2023 gives IN-SPACe a broad regulatory role. It functions as the single-window agency for authorisation of specified space activities and is required to account for safety, national security, international obligations and foreign policy considerations. Activities requiring authorisation include the establishment and operation of space objects, launch vehicles, launch pads and planned re-entry of space objects.[20] IN-SPACe is also expressly empowered to prescribe guidelines dealing with liability arising from potential damage caused by space activity.[21]

NGP 2024 operationalises that mandate. Its treatment of liability is particularly detailed for launches. It expressly records that the Liability Convention can expose a launching State to unlimited third-party liability and acknowledges that this exposure exists irrespective of whether the underlying activity is governmental or private.[22]

For sub-orbital and orbital launches from Indian territory, IN-SPACe may require the launch operator to maintain third-party liability insurance as part of the authorisation. The minimum amount, insurance period and policy conditions are determined by IN-SPACe. The insurance amount itself is to be subject to a cap prescribed by the regulator.[23] The policy is expected to remain valid for the prescribed risk period, including relevant re-entry risks associated with spent stages. Both the customer and the Government of India may be included within the insured structure where required.[24]

The framework adopts a more differentiated approach for other mission configurations. Indian launch operators may undertake launches outside Indian territory with IN-SPACe authorisation, while liability is expected to be addressed with the responsible foreign State

[19] G.A. Res. 68/74, ¶ 7, Recommendations on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space (Dec. 11, 2013).
[20] Dep't of Space, supra note 1, § 5(1), at 7.
[21] *Id.* § 5(18), at 9.
[22] NGP 2024, supra note 7, at 58. NGP 2024 expressly recognises that a launching State may face unlimited third-party exposure irrespective of whether the space activity is governmental or private.
[23] *Id.* at 58.
[24] *Id.* at 58–59.

through agreements, contracts or other appropriate mechanisms where legally feasible.[25] When an Indian space object is launched using a non-Indian launch vehicle, NGP 2024 expects the launch contract to allocate launch-related third-party liability to the launch operator until separation of the space object.[26] Planned re-entry is treated separately, with IN-SPACe determining third-party insurance requirements on a case-by-case basis.[27]

These provisions reveal an effort to connect liability with the stage and geographical structure of the mission. This is preferable to a single undifferentiated rule covering every space activity. Launch, orbital operation and re-entry create different types of risk and therefore justify different regulatory treatment.

NGP 2024 also contains a broader indemnification structure. A launch applicant must undertake launches at its own risk and is responsible for third-party damage and associated claims arising from authorised launch activity. The applicant is expected to indemnify the Government of India and its agencies for liability incurred under India's international commitments.[28]

The standard conditions attached to authorisation contain an even wider provision. Losses, damages, costs, fees and other expenses incurred by IN-SPACe, the Government or its agencies under the Liability Convention or otherwise, where attributable to the applicant, are recoverable from the applicant in full along with legal expenses.[29] A separate indemnification clause requires an applicant to defend and indemnify IN-SPACe and the Government against a broad range of claims connected with authorised space activity, including bodily injury, property damage and breaches of domestic or international law.[30]

These provisions give the State extensive contractual and administrative protection. They also create uncertainty about the eventual financial limit faced by a compliant private operator.

[25] *Id.* at 59.
[26] *Id.* at 60.
[27] Id.
[28] *Id.* at 52–53. The launch authorisation conditions require an applicant to bear launch-related third-party risk and indemnify the Government for international liability attributable to the activity.
[29] *Id.* at 87. The standard authorisation conditions provide for recovery in full of Liability Convention losses and associated expenses attributable to the applicant.
[30] *Id.* at 91. The separate indemnification provision covers direct and indirect loss connected with claims arising from authorised space activities.

IV. The Gap Between Insurance and Ultimate Liability

An insurance requirement answers one question: what financial security must the operator maintain before conducting the mission? A liability limitation answers another: how much of a catastrophic loss can ultimately be recovered from the operator? Conflating the two creates uncertainty for investors, insurers and the regulator itself.

Assume that IN-SPACe authorises an Indian launch provider and prescribes third-party insurance up to a particular amount. The operator purchases the required coverage and performs the launch in accordance with its authorisation. A failure nevertheless causes third-party damage whose value greatly exceeds the policy limit. The insurance requirement has been fulfilled. If the standard authorisation condition permitting full recovery remains applicable, the operator may still face recourse for the entire residual amount paid by India.

The commercial consequences are substantial. Insurance makes risk transferable only within an identifiable range. A company deciding whether to develop a launch system must assess its expected revenues, insurance premium, capital requirements and potential liability. A large uncapped residual exposure can remain impossible to quantify. For a start-up or medium-sized operator, a treaty claim of exceptional magnitude could exceed the company's assets many times over. The Government would possess a legal claim for indemnification but could recover only what the operator can actually pay.

This produces an awkward result. Formal unlimited recourse can create severe commercial uncertainty while offering the Government limited protection in a true catastrophic event. A liability framework should therefore distinguish between losses that private insurance and operator assets can realistically absorb and losses whose magnitude places them within the category of sovereign or systemic risk.

The 2017 Draft Space Activities Bill had attempted to address operator recourse by providing that a licensee would indemnify the Central Government against claims arising from licensed commercial space activity. It also allowed the Government to determine the quantum of the licensee's liability.[31] The Bill did not progress into legislation. NGP 2024 has since built a more detailed operational structure, though the boundary between the insured layer and total operator

[31] Draft Space Activities Bill, 2017, § 12 (India).

exposure remains unresolved.

A statutory liability cap can provide that boundary. The cap should apply to an operator that has acted within the authorised activity and complied with prescribed insurance, safety and reporting conditions. It should correspond to a risk assessment conducted before the mission and should generally match the required amount of insurance or approved financial security.

A uniform fixed cap would fit poorly with the diversity of space activity. A small sub-orbital mission and a heavy orbital launch present different hazards. Launches from remote coastal facilities differ from operations near areas with greater population exposure. Vehicle reliability, trajectory, propellant type, payload characteristics and planned disposal can alter the expected loss profile.

A Maximum Probable Loss, or MPL, model is therefore more appropriate. The regulator would assess probable third-party loss from credible mission failure scenarios and determine the financial responsibility required for that particular operation. The methodology should be published through rules so operators can understand the variables that influence their insurance requirement. The final amount can remain mission-specific.

A statutory maximum should still govern the MPL calculation. The commercial insurance market may be unable to supply coverage at any conceivable amount. Requiring insurance beyond what is available at reasonable cost would effectively prevent authorised activity even where the Government has assessed the mission as acceptable. Legislation should permit IN-SPACe to consider global insurance capacity when prescribing financial responsibility.

India should also distinguish among phases of risk. Launch generally presents concentrated short-duration risk to persons and property on the ground. In-orbit operations produce prolonged but different exposure, usually centred on collisions and interference with other space objects. Controlled or planned re-entry creates another period of heightened terrestrial risk. The operator's financial responsibility should reflect these phases.

Such differentiation is already implicit in NGP 2024, which recognises different insurance periods and case-specific treatment of planned re-entry.[32] Legislation can turn that approach into a stable structure. A launch provider could carry a higher MPL-linked policy for the launch

[32] NGP 2024, supra note 7, at 58–60.

and immediate post-launch phase, while a satellite operator could maintain a separately assessed level of financial responsibility for orbital operations and planned re-entry.

V. The Case for a Governmental Catastrophic-Risk Layer

Private assumption of ordinary commercial risk follows directly from operational control. A launch operator chooses its technology, personnel, contractors and internal safety processes. It receives the commercial return and is best placed to reduce a substantial portion of the mission risk. Compulsory insurance ensures that compensation does not depend entirely upon the operator's immediate liquidity.

Catastrophic space risk has a different financial profile. A severe accident can produce losses far beyond the normal balance sheet of a private operator. Available insurance capacity can also fluctuate according to global launch losses and conditions in the aerospace insurance market. The State must therefore decide whether compliant operators will face unlimited residual exposure after satisfying the prescribed financial responsibility.

Comparative legislation shows that public assumption of an exceptional layer of risk can coexist with strong operator liability.

The United States requires a commercial launch or re-entry licensee to obtain liability insurance or demonstrate financial responsibility sufficient to cover the Maximum Probable Loss determined by the Secretary of Transportation. Federal law imposes statutory limits on the amount of insurance that can be required and accounts for the amount of insurance reasonably available in the world market.[33] A separate statutory mechanism provides for United States payment of certain successful third-party claims exceeding the required financial responsibility, subject to statutory conditions and legislative appropriations.[34] Wilful misconduct falls outside the protection afforded by the excess-claims mechanism.[35]

The American model provides two useful principles for India. Financial responsibility is tied to an ex ante risk calculation, and catastrophic excess liability is treated separately from the

[33] 51 U.S.C. § 50914(a) (2018 & Supp. 2026). The provision links required financial responsibility to Maximum Probable Loss and establishes statutory limits, including reference to insurance available on the world market at reasonable cost.
[34] 51 U.S.C. § 50915(a) (2018 & Supp. 2026).
[35] *Id.* § 50915(a)(2); see also 14 C.F.R. § 440.19 (2026). The federal excess-claims structure excludes losses resulting from wilful misconduct by the party seeking payment.

operator's ordinary insurance layer. The State can consequently encourage commercial activity while retaining safeguards around public expenditure.

Australia adopts another explicit risk-sharing structure. The Space (Launches and Returns) Act 2018 requires relevant permit holders to maintain insurance covering the operator's third-party liability and the Commonwealth's potential liability under the Liability Convention or international law.[36] For specified authorised activities, the responsible party's liability is limited to the insured amount. Where qualifying damage to Australian nationals exceeds that amount, the Commonwealth can become liable for an additional statutory layer up to the amount provided by the legislation.[37] The responsible party's liability to the Commonwealth for an international claim is similarly linked to the applicable insured amount in relevant circumstances.[38]

The United Kingdom's Space Industry Act 2018 follows a more flexible licensing structure. Operator liability may be limited in accordance with the statutory framework and licence conditions, while the Act provides mechanisms for governmental indemnification of claims beyond the applicable operator limit.[39] The legislation separately obliges persons carrying out spaceflight activities to indemnify the Government against specified claims, subject to applicable liability limits.[40] The statutory relationship between liability limitation and government indemnity makes the allocation visible within primary legislation.

France provides perhaps the most useful comparison for an Indian model. Under the French Space Operations Act, an operator is responsible for third-party damage arising from the space operation, with strict liability applicable to specified terrestrial and airspace damage and a fault standard applicable in other contexts.[41] The operator must maintain insurance or other approved financial security.[42] The authorisation sets the amount associated with operator recourse and

[36] Space (Launches and Returns) Act 2018 (Cth) s 48 (Austl.).
[37] *Id.* ss 69(3)–(4). Australian law limits the responsible party's liability to the insured amount in specified circumstances and provides a further Commonwealth layer for qualifying claims by Australian nationals.
[38] *Id.* s 74.
[39] Space Industry Act 2018, c. 5, §§ 34–35 (UK).
[40] *Id.* § 36. The statutory indemnification obligation is expressly linked to the maximum liability applicable to the operator.
[41] Loi 2008-518 du 3 juin 2008 relative aux opérations spatiales [Law No. 2008-518 of June 3, 2008 Relating to Space Operations], *Journal Officiel de la République Française* [J.O.] [Official Gazette of France], June 4, 2008, art. 13 (Fr.). Article 13 places strict liability on the operator for damage caused on the ground or in airspace and applies a fault standard elsewhere.
[42] *Id.* art. 6.

the State guarantee with reference to mission risk.[43] Where eligible compensation exceeds the prescribed amount, the State guarantee can protect the authorised operator, subject to statutory conditions.[44]

The French framework is valuable because it connects authorisation, insurance, operator liability and governmental guarantee within a single legal architecture. It also distinguishes the treatment of damage according to the operational phase and preserves stronger consequences for intentional fault.

India need not reproduce any one foreign model. Its commercial market, governmental launch infrastructure, regulatory institutions and stage of private-sector development differ from those of mature launch jurisdictions. The comparative regimes nevertheless demonstrate that a liability cap does not amount to general immunity for commercial operators. It can operate as one element of a broader structure in which private industry finances predictable risk and the State absorbs a carefully defined layer of extraordinary loss.

VI. Designing a Three-Layer Indian Liability Model

A future Indian Space Activities Act should codify three distinct layers of financial responsibility.

A. Layer One: Mission-Specific Operator Liability

The first layer should consist of operator liability backed by compulsory third-party insurance or another form of approved financial security. IN-SPACe should conduct an MPL assessment for designated categories of activity before authorisation.

For launches, the assessment should consider the vehicle's reliability record, launch site, trajectory, population distribution beneath relevant flight corridors, propellant characteristics, probability of debris impact, payload characteristics and credible failure modes. A new launch vehicle with limited flight history may justify a different assessment from an established system with demonstrated reliability.

[43] *Id.* art. 16. The authorised amount is fixed with reference to the risks of the operation, including characteristics of the launch site.
[44] *Id.* art. 15. The French State guarantee applies to specified compensation exceeding the amount determined under the statutory framework.

For re-entry, IN-SPACe should consider mass, survivability of components, ability to control the re-entry trajectory, designated impact area and uncertainty surrounding atmospheric breakup. Planned re-entry deserves separate treatment because control over the timing and location of return can materially alter terrestrial risk.

Orbital operations require another methodology. The principal risks involve collisions with other operational spacecraft, creation of debris and failure to comply with disposal obligations. Financial responsibility could depend upon orbit, manoeuvrability, tracking capacity, spacecraft mass, constellation size and mission design. Operators conducting rendezvous, proximity operations or in-orbit servicing may justify higher limits because their activities involve deliberate close interaction with other space objects.

The authorisation should state the operator's liability limit in monetary terms. Compliance with the prescribed financial responsibility should normally limit recourse to that amount for the authorised activity. The relationship between insurance and liability would then be clear before the mission begins.

A statutory upper limit should prevent MPL requirements from becoming commercially unrealistic. IN-SPACe should also possess authority to prescribe a lower amount where the demonstrated risk justifies it. Exemptions could be available for very low-risk activities through transparent regulatory criteria.

B. Layer Two: Government Assumption of Catastrophic Excess Liability

The second layer should begin once a compliant operator's statutory liability limit has been exhausted.

Government assumption of catastrophic risk should apply only to an authorised activity conducted substantially within the conditions of the authorisation. The operator should have maintained the prescribed insurance, supplied accurate information during the authorisation process, complied with mandatory safety directions and fulfilled reporting obligations.

The Government guarantee should itself have a ceiling. Unlimited governmental protection could create an uncertain contingent burden on public finances and reduce incentives for careful risk management. Parliament should therefore establish an outer statutory amount or authorise periodic revision through rules subject to legislative oversight.

The guarantee may be designed either as direct payment of eligible excess claims or as indemnification of the operator after a claim has been determined. The choice should depend upon the structure of the domestic cause of action created by the legislation. For an international claim under the Liability Convention, the Government would necessarily remain centrally involved because the treaty claim operates between States.

A Space Liability Fund could support this layer. Authorised operators engaged in designated high-risk activities could contribute a small risk-based levy. Contributions could vary according to mission category and MPL. The fund would provide a first public pool for exceptional claims, with parliamentary appropriations available where a loss exceeds accumulated resources. Such a fund would also make contingent State exposure more visible in public accounts.

Care is required here. An industry levy set too high could reproduce the same entry barriers as excessive insurance. The contribution should therefore complement the insurance system and remain proportionate to the scale of the activity.

C. Layer Three: Unlimited Recourse for Aggravated Conduct

A commercial operator should receive the benefit of a liability limitation because it complied with the legal structure created to manage risk. Serious departures from that structure should alter the allocation.

NGP 2024 already provides that an applicant found guilty of wilful misconduct or gross negligence resulting in third-party liability may be required to remedy losses arising from that conduct.[45] A statute should develop this principle more precisely.

The liability cap should cease to apply where damage results from intentional misconduct, fraud, deliberate concealment of material safety information, operation outside the authorised mission parameters, knowing violation of a binding safety direction or gross negligence. Conduct of this kind changes the basis upon which governmental protection was granted.

The legislation should define gross negligence with sufficient clarity. A broad undefined standard can recreate uncertainty at a different stage of the regime. Gross negligence could be

[45] NGP 2024, supra note 7, at 61.

linked to a serious departure from a standard of care demonstrating reckless disregard for a substantial and foreseeable risk.

Causation should also remain necessary. A regulatory breach unrelated to the accident should not automatically expose the operator to unlimited liability. The Government seeking recourse above the normal cap should establish an appropriate connection between the aggravated conduct and the relevant loss.

This third layer protects the integrity of the risk-sharing system. The Government accepts catastrophic exposure based upon the assumption that the operator has disclosed relevant information and observed the authorised safety framework. Conduct that materially undermines those assumptions justifies broader recovery.

VII. Fault, Space Debris and Continuing Supervision

A statutory framework should also give substantive content to the fault standard relevant to orbital damage.

Article III of the Liability Convention leaves the concept of fault open. Domestic legislation cannot conclusively determine international responsibility for another State, though Indian regulatory standards can establish clear expectations for Indian operators and provide evidence relevant to the assessment of fault.

IN-SPACe already requires adherence to applicable space-debris mitigation guidelines and contemplates further standards for safe and sustainable space operations.[46] These requirements can form part of a domestic standard of care.

Operators should be required to maintain adequate space situational awareness capabilities appropriate to their mission. They should respond to credible conjunction warnings, maintain communication channels for collision coordination, provide accurate orbital information where required, and comply with authorised end-of-life disposal plans. Operators controlling manoeuvrable satellites should document the reasons for decisions taken in response to high-risk conjunction events.

A rebuttable presumption of reasonable care could arise where an operator demonstrates

[46] *Id.* at 60–61.

compliance with binding safety rules, accepted conjunction-assessment procedures and its authorised mission plan. Such compliance should remain evidentiary because unusual operational circumstances may require additional precautions.

A converse presumption could apply in narrow circumstances. Deliberate failure to respond to a binding IN-SPACe safety direction, concealment of material orbital information or serious departure from an approved disposal plan could provide evidence supporting a finding of fault.

Continuing supervision under Article VI then acquires concrete content. Supervision should include ongoing reporting, material event notification, inspection powers, compliance audits and the ability to impose corrective directions during the operational life of a spacecraft. NGP 2024 already contains reporting obligations for material adverse events and allows IN-SPACe to conduct inspections and audits.[47] Parliamentary legislation can place these powers on a firmer statutory foundation.

The connection between supervision and liability should remain visible. Strong regulatory oversight reduces the probability of the very events for which India may ultimately face international claims.

VIII. Domestic Third-Party Claims and Claims Administration

The Liability Convention principally structures claims between States. A comprehensive Indian regime should separately provide a domestic mechanism for individuals and entities suffering qualifying damage from authorised space activity.

The statute should create a direct cause of action against the responsible operator for bodily injury, death and property damage caused during defined launch and re-entry liability periods. Strict liability is appropriate for terrestrial damage produced by launch and re-entry activities because members of the public ordinarily have no ability to evaluate or control the risk.

The legislation should define the responsible operator for each phase. During launch, liability would ordinarily attach to the authorised launch operator. Following separation, responsibility could move to the entity exercising control over the spacecraft. Planned re-entry should attach to the entity controlling the return. Clear temporal rules would reduce disputes where more

[47] *Id.* at 86–90.

than one commercial actor participated in a mission.

Claims arising from orbital collisions may require proof of fault. A specialised technical forum could assist in adjudicating such disputes. India may consider a designated tribunal or specialised jurisdiction capable of handling telemetry, conjunction data, orbital modelling and technical evidence.

The Department-related Parliamentary Standing Committee has already recorded that comprehensive space legislation is being developed.[48] Claims administration should be addressed within that legislative process rather than left entirely to individual authorisation documents.

International claims require a distinct procedure. Where another State presents a claim against India under the Liability Convention, the Government should control the international conduct of the matter. The relevant operator and insurer should have duties to preserve evidence, disclose mission records and assist the Government in investigation, negotiation and defence.

Any settlement entered into by the Government should bind the operator for domestic recourse purposes only within the statutory risk-sharing framework. Where ordinary operator liability has been capped, a governmental settlement should not independently enlarge the operator's exposure beyond that cap. The exception would arise where the statutory requirements for aggravated misconduct have been established.

Multi-State missions will require cooperation before an accident occurs. IN-SPACe should examine the launching-State configuration as part of authorisation. Agreements with foreign governments may address registration, liability allocation, information sharing and claims handling. Commercial launch contracts should complement such arrangements without being treated as substitutes for India's treaty obligations.

IX. Why Primary Legislation Is Necessary

NGP 2024 has already developed much of the practical machinery required for commercial space regulation. The case for legislation therefore rests on the character of the decisions being made.

[48] Dep't-Related Parliamentary Standing Comm., supra note 10, ¶ 93.

A decision about insurance requirements can appropriately involve technical regulatory discretion. A decision about the maximum financial liability of a private operator has broader legal consequences. A government guarantee above that limit can expose public funds. A domestic cause of action determines the rights of third parties who have no contractual relationship with IN-SPACe. The circumstances in which unlimited recourse becomes available can affect the survival of a commercial enterprise.

These issues belong within a legislative framework that sets the governing principles and delegates technical calculations to the regulator.

Article 253 of the Constitution gives Parliament authority to enact laws for implementing international treaties and conventions.[49] Space legislation can therefore translate India's obligations under the Outer Space Treaty, Liability Convention and Registration Convention into domestic rules governing authorisation, supervision, registration and liability.

The statute should define the classes of activity requiring authorisation, identify the responsible regulator, establish the principles governing financial responsibility and prescribe the basic structure of third-party liability. Detailed MPL calculations, technical standards and insurance documentation can be governed through rules issued under the Act.

This division also improves regulatory certainty. IN-SPACe would retain flexibility to respond to new technologies and mission profiles. Operators would know the legal boundaries within which that discretion operates. Insurers would be able to price exposure against a legally recognised maximum. Parliament would have visibility over the circumstances in which the public exchequer assumes catastrophic risk.

The resulting framework would build upon NGP 2024 instead of discarding it. The guidelines have already identified the principal categories of activity, relevant insurance periods, cross-border launch arrangements and the need for governmental protection against international claims. Legislation can supply the missing allocation between private and public exposure.

X. Conclusion

India's commercial space reforms have created a regulatory structure in which private entities

[49] INDIA CONST. art. 253.

can exercise substantial control over activities whose international legal consequences continue to attach to the State. NGP 2024 has responded through insurance, indemnification and governmental recourse. Its treatment of insurance caps alongside broad recovery provisions leaves the ultimate extent of a compliant operator's financial exposure uncertain.

A statutory three-layer system offers a more stable allocation. Mission-specific and insurable risk should form the first operator-funded layer. Defined catastrophic losses above that amount should enter a government-backed layer subject to statutory safeguards. Operators responsible for wilful misconduct, gross negligence or serious causally connected regulatory violations should remain exposed to full recourse.

The model can be adapted across launch, orbital operation and re-entry through separate risk assessments. A domestic cause of action, clear claims procedure and stronger statutory basis for continuing supervision would complete the framework.

India now possesses an administrative foundation through the Indian Space Policy and NGP 2024. The forthcoming legislative process offers an opportunity to convert that foundation into a predictable liability system. Commercial space activity can then develop within a structure in which operational risk, insurance capacity and governmental treaty exposure are identified before a mission leaves the ground.