WHY ADR NOT INCARCERATION SHOULD BE THE PRIMARY LAW OF THE SPATIAL FRONTIER

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INTRODUCTION

This paper answers the following research question: can Alternative Dispute Resolution function as the primary legal mechanism for solving disputes In the outer space, and if so what enforcement architecture is constitutionally, institutionally and technically required to make is work legally This paper proceeds on the assumption that outer space requires not merely dispute resolution, but a legally enforceable system of adjudication capable of operating in the absence of territorial sovereignty.

Humanity stands at the threshold of an era in which the human beings will not just visit outer space but also live in it on orbital stations, lunar outposts, and eventually Martian colonies. With habitation there comes human conflict which calls for a need of laws. Laws require enforcement. This simple and basic argument contradicts with the reality of outer space: a frontier that has no police force, no prison system and no government authority capable of compelling compliance with any legal decision.[1]

This thought or question is not hypothetical and was demonstrated in 2019 when NASA astronaut Anne McClain was accused of accessing a shared bank account without authorisation no criminal charges were ultimately held against her and the matter was resolved fully by terrestrial institutions i.e. NASA's inspector General and the US Army with no space specific legal framework to draw upon. This incident exposed that it was not a failure of imagination but was a structural failure of law that has not kept up with the developing technology[2]. SpaceX's starship programme NASA's Artemis Lunar return mission, ISRO's Gaganyaan crewed missions place human beings in such environments that will test the limits of the existing legal framework. The urgency of such laws arrived at different starting points for the Indian and International community. From the perspective of international law the vacuum of enforcement is a key feature of the treaties negotiated between the years 1967 and 1979 as these treaties existed mainly for the two countries active

[1] Frans von der Dunk, Passing the Buck to Rogers: International Liability Issues in Private Spaceflight Nebraska Law Review 86, 400 (2011)
[2] Frans von der dunk and fabio tronchetti (eds) handbook of space law (edward elgar 2015)

in space i.e. US and USSR. The issue is outdatedness of the old laws. From India's perspective the issue is more fundamental, it is not outdatedness but absence of the law itself. India has signed the Outer space treaty 1967, the Rescue Agreement 1968, the Liability Convention 1972 and the Registration Convention 1976 but has not signed the Moon agreement 1979[3] and also consists of no domestic legislation addressing space disputes at all[4]. After the launch of Gaganyaan India became the fourth nation to independently send humans to space[5] and the question of how the law will govern disputes involving indian astronauts became operationally real for the time with no answer for the same being available. Where the international community needs to update their framework, india needs to build one framework from scratch. Both problems lead to similar outcomes i.e. when there is a dispute in space nobody has the proper tools to resolve it. This paper examines the enforcement question in depth. First the legal doctrinal analysis examine the existing treaty framework and national arbitration statutes to identify where gaps in enforcement authority arise. Second the comparative analysis draws on analogues regimes to identify the institutional models that have addressed similar enforcement problems and asses their transferability to the space context. Together these two methods support the argument for a tiered, consent based ADR enforcement framework.

ADR IN SPACE: PROMISE AND STRUCTURAL WEAKNESS

➢ What is ADR and why is it preferred

ADR, mediation and arbitration helps to resolve disputes outside formal court litigation. Arbitral awards get their legitimacy from the parties consent not the state's authority[6]. ADR is preferred as a solution for space disputes as the crew members are multinational making one single national court politically in a difficult situation. Also ADR would help in resolving disputes faster than litigation allows. Lastly litigation has a confrontational nature which can pose a harm on the teamwork needed for the crew survival. However, ADR's reliance on voluntary compliance creates structural limitations in environments where coercive enforcement mechanisms are absent.

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[3] UNOOSA, Status of International Agreements relating to Activities in Outer Space, January 2023
[4] Draft Space Activities Bill 2017; Indian Space Policy 2023
[5] ISRO, Human Spaceflight Programme: Gaganyaan, isro.gov.in
[6] Matthew Schaefer, The Case for Non-Mandatory Mediation of International Space Disputes Journal of Space Law 47(1) (2019)

- **Hart's secondary rules: why enforcement is an essential part of law**

The theoretical case for ADR in space must be built on a clear understanding of what makes any system of rules a legal system at all rather than just a set of social customs.. The Concept of Law by H.L.A Hart creates a difference between the primary rules and secondary rules. Primary rules are what the people must do no matter what and secondary rules are how the rules are recognised, changed, and enforced[7]. According to Hart a system with only primary rules and no secondary rules of enforcement cannot be considered as a legal system it just a set of social customs. Applying this framework to space ADR produces an accurate diagnosis of the existing problem. The Outer Space Treaty 1967 creates the primary rules: states bear responsibility for national activities in outer space under Article VI and jurisdiction follows the flag of the registering state under Article VIII. These are clear obligations but the treaty creates no secondary rules i.e., no mechanism by which a state exercises that jurisdiction against a non-compliant individual aboard a habitat, no enforcement body, no compulsory dispute resolution procedure, and no consequence for a state that fails to act. Hart's framework therefore reveals that the Outer Space Treaty does not constitute a complete legal system for crewed space operations. It assigns responsibility without providing the means of discharging it.

An ADR award issued in respect of a space dispute therefore currently sits in the same category as Hart's social custom it carries moral force and reputational weight, but lacks the secondary rule infrastructure that would make it legally binding in the full sense. The paper tries to identify what secondary rules are needed and how they can be constructed. This distinction has a concrete application: the difference between compliance pull, where parties comply because they accept the award as legitimate and compliance push, where compliance is forced without willingness. ADR usually relies on pull. The paper's central question is: what happens when pull fails and push is required but the machinery for push does not exist?

- **The enforcement gap and how both legal systems hit the same wall**

On earth the compelling power of the state shadows every arbitral award. In outer space the guarantor is absent. The enforcement of arbitral without state's structure is extremely challenging as arbitration is fundamentally consensual and typically relies on state's power to enforce the rules[8]. Both india and the international community have a strong arbitration

[7] H.L.A. Hart, The Concept of Law, Oxford University Press 3rd ed. (2012)
[8] SCC Online Blog. (2024). Enforcement of Arbitral Awards in India: Analysis, Potential Issues and Strategies for Success. scconline.com

framework on earth but both face the same issue when the dispute moves to space. India's Arbitration and Conciliation Act 1996 based on the UNCITRAL model law is one of the Asia's most progressive arbitration statutes[9] and Indian courts have become open to enforcement[10]. The English Arbitration Act 1996 is equally strong and english courts always uphold arbitral finality[11]. Both acts however apply within a specific territory, India's act applies only when the dispute has a connection to the Indian territory[12] and there are similar limitations under the english act[13]. A dispute abroad a space station has no territorial connection to either of the country's placing it entirely outside the framework of both the country's. The New York Convention extends the enforcement across 170 states but only once the parties return back to Earth with seizable assets. It cannot help with the disputes arising in the Orbit right now. Both Mumbai Centre for International Arbitration and Delhi International Arbitration Centre has jurisdiction over the space disputes and neither do any English arbitral institution. The gap is similar for both the systems the only difference between them is what each has to build on. Critically, the gap is not merely the absence of enforcement tools, but the absence of a clearly designated enforcement authority in orbit, creating both a legal and operational vacuum.

- **The ISS code of conduct: An untested Quasi-ADR instrument**

The ISS Code of Conduct which is established under Article 11 of the IGA 1998 is the closest existing space oriented behavioural framework[14]. It is consent based which means that crew members sign before the departur, and it relies on prior agreement rather than any coercive authority. Critically the code has never been tested against the crew member itself who genuinely refused compliance. The code's enforcement pull has never failed as it has never been truly tested and we cannot just assume whether its going to work or not.

THE EXISTING LEGAL ARCHITECTURE

- **The outer space treaty 1967: jurisdiction without enforcement**

[9] Arbitration and Conciliation Act 1996
[10] Board of Control for Cricket in India v Kochi Cricket Pvt Ltd (2018) 6 SCC 287
[11] Dallah Real Estate and Tourism Holding Co v Ministry of Religious Affairs of the Government of Pakistan [2010] UKSC 46
[12] Arbitration and Conciliation Act 1996, § 2(2), 34, 48
[13] Arbitration Act 1996 (UK), § 66
[14] ISS Intergovernmental Agreement 1998, Article 11

Article VI of the treaty mentions that State parties will bear the international responsibility for all the national activities in the out space including those of private entities. Article VIII provides that the state of registration of a space object holds jurisdiction and control over its personnel while in outer space[15] jurisdiction is personal and ambulatory it travels with the national flag rather than attaching to a physical territory[16]. The outer space treaty helps to identify who is responsible for the enforcement but provides no way for how enforcement is to occur. For india if an indian astronaut aboard a multinational commercial station refuses to follow with an ADR award india will bear the responsibility under Article VIII but has no legal tools to discharge it. The Draft Space Activities Bill 2017 ended without its enactment[17] and the Indian Space Policy 2023 has no legal force and no system to resolve conflicts[18]. The gap between identifying the responsibility and actually exercising it is where the topic of Space-Banishment Dilemma starts and it is a gap that exists for all nations that are involved in space travel though it is deepest for India because it has the fewest domestic tools to reduce it.

- **The ISS IGA 1998: The Closest Existing Model, and Why India Is Outside It**

The IGA 1998, signed by the US, Russia, Canada, Japan, and 11 European nations is considered as the most sophisticated existing framework. Article 22 gives criminal jurisdiction on the basis of nationality. where an offence harms another state's astronaut, states must consult, the primary state has responsibility but a secondary state's right to prosecute arise to the affected state if no action is taken within ninety days. extradition using the IGA as legal basis is contemplated[19]. The IGA neither prescribes how a crew member is to be physically removed against their will nor addresses what happens if the nation state refuses to cooperate, this is the weakness that the parties usually face. But the more fundamental structural problem is that China and India, the two nations most likely to dominate space operations in the coming decades, are entirely outside the IGA framework. The international community therefore has a partial working model it needs to expand India has nothing similar at all. This is not a minor issue. It means that the most detailed existing enforcement framework in space law simply does not apply to India and every argument for a

[15] Outer Space Treaty 1967, Articles VI and VIII
[16] Stephan Hobe, Bernhard Schmidt-Tedd and Kai-Uwe Schrogl (eds), Cologne Commentary on Space Law 1 (2009)
[17] Draft Space Activities Bill, 2017
[18] Indian Space Policy, Department of Space, Government of India (2003)
[19] IGA 1998, Article 22; von der Dunk and Tronchetti (eds), Handbook of Space Law (Edward Elgar, 2015)

new multilateral framework from india's perspective is an argument for creation of something india lacks in.

STRUCTURED COMPARISON: SPACE LAW AGAINST MARITIME AND ANTARCTIC REGIMES

- **The Antarctic Analogy**

The Antarctic Treaty 1959 and Madrid Protocol 1991 control an environment with no permanent civilian population, no police, and no enforcement infrastructure[20]. Enforcement depends fully on the country's control and how the things are distributed. The assumption that mutual operational dependency makes forceful enforcement unnecessary has been held in Antarctica as stations are small and professionally motivated. As space habitats become larger, more economically diverse, and more politically diverse which includes hosting people from countries with no prior enforcement agreements between them such as India and the existing IGA partners the assumption will become gradually harder to support. The Antarctic analogy therefore marks the ceiling of the non coercive approach not its permanent adequacy.

- **The Maritime Analogy and the ITLOS Model**

The maritime analogy is more instructive because it shows how a structurally identical enforcement problem was solved through institutional design. Under UNCLOS Article 92, ships on the high seas are under the exclusive jurisdiction of their nation state[21] exactly like spacecraft under Outer space treaty Article VIII. The outer space treaty's nation-state model is underdeveloped exactly like the way pre-ITLOS maritime law was underdeveloped and a nation state that has registered a spacecraft for tax or convenience reasons with no practical enforcement capacity is similar to a flag-of-convenience registry at sea[22]. ITLOS is a permanent standing body with compulsory jurisdiction in defined circumstances, an established procedure, and the capacity to issue binding decisions.What maritime law has achieved and space law has not is the institutional supplement through ITLOS which is a standing permanent forum with compulsory jurisdiction in defined circumstances[23]. Before

[20] Donald Rothwell, The Polar Regions and the Development of International Law Cambridge University Press, 1996
[21] UNCLOS 1982, Article 92
[22] von der Dunk, Passing the Buck to Rogers (2011), above
[23] UNCLOS, Annex VI, Article 1; Yoshifumi Tanaka, The International Law of the Sea, 3rd ed. (Cambridge University Press, 2019), Chapters 4 and 8]

ITLOS maritime conflicts were handled through bilateral discussions and nation-state jurisdiction which is exactly the way space disputes are handled today. The proposal in Section VI for a Space Dispute Resolution Tribunal is the space-law equal of ITLOS and it is a proposal that would it would be beneficial for both India, which has no existing enforcement model and the international community which has an outdated one.

- **UNCITRAL and the New York Convention: Powerful But Temporally Limited**

The UNCITRAL Model Law 1985, amended 2006 and New York Convention 1958 make up the global architecture for cross-border arbitral award enforcement with recognition that is refused only on limited grounds[24]. This framework is powerful but it is temporally limited it operates only after a party returns to Earth and holds the assets in a state that has accepted the treaty. It acts as an instrument to resolve the space disputes but not for the dispute that unfold in the orbit and this limitation applies both to the Indian and English proceedings depending upon it.

MECHANISMS SHORT OF FINAL SANCTIONS

- **Self enforcing contracts**

Self-enforcing contracts are designed in such a way that the rules made are in every party's self-interest making the external enforcement unnecessary. They function through repeated interactions, reputational costs and mutual stakes[25]. However self-enforcing contracts fail when a party is irrational that is when they are mentally unwell, or genuinely indifferent to the future. At that point the contractual structure fail regardless of which legal system, Indian or English.

- **Smart contracts and blockchain based ADR**

Smart contracts are self-executing agreements written into a blockchain they offer a technological substitute for the enforcement infrastructure that does not yet exist in space[26]. They can automatically lock the equipment access the moment a person in space creates an issue also it can provide a record that cannot be changed, and operate by itself during

[24] UNCITRAL Model Law 1985, Articles 35–36; Convention on the Recognition and Enforcement of Foreign Arbitral Awards 1958, Article III
[25] Robert Scott and George Triantis, Anticipating Litigation in Contract Design, Yale Law Journal 115. 814 (2004)
[26] Primavera De Filippi and Aaron Wright, Blockchain and the Law: The Rule of Code, Harvard University Press, 2018

communication delays between habitat and Earth. Under ICC Rules Article 28(6), parties agree to carry out any award without delay[27] smart contracts are the made for exactly this obligation.

illustration: Two astronauts one Indian and one American aboard a commercial lunar habitat dispute distribution of water recycling capacity. An ADR tribunal on Earth decides in the favour of the American crew member. A pre-embedded smart contract automatically restricts the Indian crew member's access without any enforcement action aboard the station.

The limitation is real regardless of the jurisdiction, code bugs can be difficult where equipment access is a survival question. But there is an additional legal complication which is specific to India. English law is broadly hospitable to self-enforcing contracts, liquidated damages, automatic termination clauses, and penalty structures are very well-established[28]. India's Information Technology Act 2000 and the Indian Contract Act 1872 however, say nothing about the smart contracts or blockchain-based agreements[29], and the Law Commission of India has not yet addressed this question. A space ADR award enforced by smart contract against an Indian party would therefore be under a legal grey zone under Indian law This is a gap that India must close as a part of its broader digital economy governance framework.

- **Lex Mercatoria: Precedent and Its Limits**

The medieval lex mercatoria which is an autonomous, decentralised legal system created by the merchants across borders without state backing was enforced through reputation and blacklisting rather than courts[30] is a direct historical analogy to emerging space financial law. Space commerce is fast-moving and changing in ways that state law is not sufficient to govern, reputation, not force, is the primary enforcement mechanism for private operators already creating standard-form contracts and dispute resolution clauses. However medieval merchants depended on state-granted rights to access the trade fairs and have awards recognised by sovereign courts[31] and space lex mercatoria will face the same limit. Indian courts have occasionally recognised changing commercial custom in arbitration contexts[32]

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[27] ICC Rules of Arbitration, 2021, Article 28(6)
[28] Cavendish Square Holding BV v Makdessi [2015] UKSC 67; Dunlop Pneumatic Tyre Co v New Garage and Motor Co Ltd [1915] AC 79
[29] IT Act, 2000; Indian Contract Act, 1872
[30] Leon Trakman, The Law Merchant: The Evolution of Commercial Law, Fred B. Rothman and Co, 1983
[31] F. De Ly, Lex Mercatoria (New Law Merchant): Globalization and International Self-Regulation, Dir. comm. int. 1. 555 (2001)
[32] ONGC Ltd v Western Geco International Ltd (2014) 9 SCC 263

but Indian engagement with such rules has been more cautious than English law which meant India's participation in a future space lex mercatoria would need statutory underpinning in a way that english law does not have.

SPACE-BANISHMENT DILEMMA

- **The structure of the dilemma**

When all non-coercive mechanisms have failed, the framework faces the problem of choosing between one of the two options: remove the non-compliant individual from the habitat entirely (banishment) or confine them within it (isolation). Both are deeply problematic

Deportation is a sovereign act i.e. a state forcing a non-citizen out of its territory. But a multinational habitat is not the territory of any single state there is no host state acting as a singular authortity. Extradition is a formal judicial process which require a treaty, double criminality, and judicial process in the surrendering state[33] but the space habitat is not a sovereign jurisdiction. Space-banishment fits neither of the categories. It falls instead into the legal category of exile which modern international law has abolished[34] . There is also a practical problem that neither Indian nor international law currently address the following question properly

Who physically carries out the forced return?

Who restrains a genuinely resistant crew member?

Who operates the return vehicle if the person refuses to board?

Current missions of all nationalities have no security personnel, no restraint procedures, and no protocol for handling an individual causing problems[35]. The enforcement gap is not just legal it is also institutional and physical, and it affects every nation with space travel equally.

- **Non-refoulement and the human rights dimension**

[33] Ivan Anthony Shearer, Extradition in International Law, Manchester University Press, (1971)
[34] Universal Declaration of Human Rights, 1948, Article 9
[35] Nick Kanas and Dietrich Manzey, Space Psychology and Psychiatry, Springer, 2(7) (2008)

The principle of non-refoulement which was mentioned in the Refugee Convention 1951, the ICCPR 1966, and the Convention Against Torture 1984 prohibits a person to return to a place where they face a real risk of persecution or serious harm[36].

Consider a scenario: a Chinese national aboard a US-operated station refuses an ADR outcome related to allegations related to spying conduct. The operator wishes to return them to China. The individual argues that return will expose them to political persecution. Non-refoulement principles may constrain the operator's right to force return. Forced return in conditions of insufficient safety preparation could be considered cruel, inhuman, or degrading treatment under Article 7 of the ICCPR[37]. This applies regardless of whether the operator is under Indian or English or any other national law it is a universal international obligation.

WHAT CHANGES CAN BR MADE: REFORMS

- **International treaty reforms**

The five UN space treaties were agreed upon in the Cold War era for a world where two states were showing there dominance and have not been updated in nearly fifty years[38]. Three reforms are very crucial:

First, a new Space Dispute Resolution Protocol that is ideally a Protocol to the outer space treaty which under the Vienna Convention on the Law of Treaties 1969, Articles 40–41, can enter into force among the parties with consent without universal approval. A permanent Space Dispute Resolution Tribunal should be established based on ITLOS, with a mandatory ADR-first process and a defined three-tier enforcement system as a treaty obligation[39]. The Tribunal would have compulsory jurisdiction over disputes between state parties arising from crewed missions, with the authority to direct Tier One and Tier Two enforcement measures and to recommend Tier Three return. Its decisions would be binding on state parties and enforceable through the same mechanisms as other international tribunal decisions. The legality of this proposal rests on the ITLOS precedent: states accepted compulsory jurisdiction under UNCLOS because the alternative was more costly than the sovereignty concession required. The same calculus applies to space: as commercial crewed operations expand, unresolved

[36] Refugee Convention, 1951; ICCPR, 1966; Convention Against Torture, 1984
[37] ICCPR 1966, Article 7; Manfred Nowak, UN Covenant on Civil and Political Rights: CCPR Commentary, Engel, 2nd ed. Article 7 commentary, 2005
[38] Fabio Tronchetti, Fundamentals of Space Law and Policy (Springer, 2013)
[39] Tullio Treves, The Law of the Sea: The European Union and Its Member States (Martinus Nijhoff, 1997)

disputes will impose greater costs on operators and states than a standing tribunal with defined jurisdiction.

Second, Outer space treaty Article VI needs amendment or an official interpretation to define minimum due diligence obligations for the states authorising privately crewed missions, which includes mandatory ADR clauses, and to establish state liability for the failure of enforcement of their private operators[40].

Third, the IGA model must be expanded beyond its current timeline, either through an a system of joining a treaty or a new Multilateral Space Conduct Agreement, specially to bring India and China into the framework they currently lack entirely[41].

- **National legislation reforms**

A survey of existing national space laws reveals that the gap in ADR enforcement is universal but its depth is different for different places. The US Commercial Space Launch Competitiveness Act 2015[42], Australia's Space (Launches and Returns) Act 2018, Luxembourg's Space Resources Law 2017, the UAE Space Law 2019, and the UK's Space Industry Act 2018 all mention licensing and liability but none of these act mention disputes within the crew itself or ADR enforcement[43]. The UK Space Agency which is a licensing authority under the Space Industry Act, already has the power to regulate and to impose ADR clause requirements as a licence condition without any new primary legislation, this is the most immediately achievable reform available to just the UK. For India, the task is a bit harder because there is no existing space legislation to expand. India needs an entirely new Space Activities Act that requires ADR clauses as a licensing condition, designates the Mumbai Centre for International Arbitration or the Delhi International Arbitration Centre as default authority for space disputes and resolve the Article 21 constitutional waiver problem directly in statute by specifying that prior the mission agreement to a defined enforcement system constitutes a lawful and informed waiver specific protection liberty under bounded circumstances[44]. This statutory fix is something English law does not require the English constitutional law allows such waivers with appropriate safeguards. Pre-mission conduct

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[40] Frans von der Dunk, The Origins of Authorisation: The Article VI Space Treaty, National Space Legislation and the Role of States in Private Space Activities (2011)
[41] von der Dunk and Tronchetti (eds), Handbook of Space Law (Edward Elgar, 2015)
[42] 51 USC § 50901
[43] Lesley Jane Smith and Olavo de O. Bittencourt Neto (eds), Regulating the Use of Outer Space (Kluwer Law International, 2020)
[44] Basheshar Nath AIR 1959 SC 149; Maneka Gandhi AIR 1978 SC 597; Fabio Bassan, The Law of Space Commerce (Ashgate, 2010), Chapter 6

agreements should also be made a formal licensing requirement in all jurisdictions where the crew members are required to receive independent legal advice before signing and agreements filed with licensing authorities as public records[45]. This statutory fix is a constitutional necessity for india and not a policy choice.

- **Institutional and mission level reforms**

Every long-duration mission should include a designated Dispute Resolution Officer (DRO), a trained crew member apart from the commander whose role is neutral mediation and to reduce conflict[46]. The DRO is the first human enforcement mechanism in the tiered framework. For the disputes that the DRO cannot resolve a standing remote ADR panel on Earth which is accessible via communications link, should define jurisdiction with authority to direct Tier One and Tier Two enforcement measures, reserving Tier Three for confirmation by the relevant state authority[47]. The DRO's authority must be defined in the pre-mission conduct agreement: the DRO must have the standing to convene a dispute resolution process, the authority to implement Tier Two restriction upon direction from the remote ADR panel, and the obligation to notify the crew member's national authority when Tier Two is activated. Without these defined powers, the DRO role is merely advisory and adds nothing to the enforcement architecture. ISRO’s Gaganyaan mission currently has no official dispute resolution protocol, India has to start from scratch compared to the ISS Code of Conduct, which took years of multilateral approvals. India should develop a Gaganyaan Crew Conduct Code incorporating the updated enforcement mechanisms proposed in this paper, and should propose the Space Dispute Resolution Protocol at COPUOS where India has established its work on space debris mitigation guidelines[48]. Mandatory conflict resolution training should also be included into all crewed mission preparation programmes regardless of their nationality[49].

- **Technological reforms**

[45] Frans von der Dunk, Private Enterprise and Public Interest in the European Spacescape (International Institute of Air and Space Law, 1998)
[46] Carrie Menkel-Meadow, Dispute Processing and Conflict Resolution (Ashgate, 2003)
[47] Philippe Fouchard, Emmanuel Gaillard and Berthold Goldman, International Commercial Arbitration (Kluwer Law International, 1999)
[48] COPUOS, A/AC.105/890 (2007)
[49] Kanas and Manzey, above, Chapter 7

Current space habitats whether built by NASA, or future Indian or commercial operators are designed for operational and safety purposes with no legal enforcement architecture built in[50]. Future habitats should haveaccess to the control system from far away, ADR communications channels, safe from being tampered with, integrated smart contract structure, and a dedicated welfare room for Tier Two restriction, equipped with welfare and communications-enabled rather than cell-like. India's space technology sector, including ISRO and private operators like Skyroot Aerospace and Agnikul Cosmos, is at an early enough stage that enforcement architecture can be designed in from the outset rather than being added later which is a genuine advantage over NASA and Roscosmos, which have decades of legacy infrastructure to work upon. UNOOSA should build an international technical standards for the legal infrastructure of crewed space habitats which is applicable to all the operators regardless of their nationality[51]

TIERED FRAMEWORK AND CONCLUSION

- **The three tier model**

One single mechanism is not at all adequate for the full range of non-compliance scenarios. The solution to it is to sequence them, escalating from soft to hard only when necessary, which is a framework applicable across all national legal systems but it requires different legal grounds depending on whether the operator is subject to Indian, English, or another national law. Each tier of enforcement must be linked to a clearly defined authority structure to ensure legal validity and operational feasibility.

Tier One — Soft Enforcement: Smart contracts automatically activate upon ADR award ending non-essential privileges, restricting agreed equipment access, notifying the crew member's nation state. No human enforcement action is required. Under English law this tier is straightforwardly enforceable through standard contract process, under the Indian law its enforceability depends on the smart contract legislation which is currently missing in india.

Tier Two — Supervised Restriction: If Tier One fails, confinement to specific habitat areas with welfare monitoring, psychological support, and a time-limited review period. This tier is mentioned in the pre-mission contract as a temporary safety measure until the return to Earth

[50] Lawrence Lessig, Code: Version 2.0 (Basic Books, 2006)
[51] Peter Martinez (ed), The Development of a Legal Regime for the Governance of Space Resources (Brill, 2021); De Filippi and Wright, Blockchain and the Law (2018)

and characterisation is what separates it legally from arbitrary detention under both ICCPR Article 9 and Indian Article 2[52]. Under English law this tier may be enforceable by pre-agreed contract with proper safeguards, under Indian law it requires statutory grounding because fundamental rights cannot be waived just by a contract alone[53]

Tier Three — Return to Earth: If Tier Two also fails or the crew member causes active safety risk, return is initiated under pre-mission contract authority. The crew member has agreed, before departure, that return may be forced in under the agreed and mentioned circumstances. The Return must include safety preparation, medical support, and notification to the receiving state.

- **Pre mission consent at the legal keystone**

The entire framework depends on consent obtained before the departure through a complete pre-mission conduct agreement[54]. The objection about the consent being economically coerced should be confronted. The regulatory reforms requiring independent legal advice and government supervision reduce this concern. But ultimately the treaty underwriting is required: a multilateral Space Conduct and Enforcement Agreement getting consent from private contract into public international law[55]. For India this is not just desirable but constitutionally necessary

Answering the central question: can ADR function as a primary legal system without an enforcement backbone?

Yes, but only if the enforcement backbone is built into system by design and not imported from outside when needed. The weakness of ADR in space is not that enforcement is impossible but it is that enforcement has not been architecturally planned before. The tiered framework proposed in this paper provides the secondary rules that Hart's framework identifies as the difference between a legal system and a collection of social customs: recognition through the pre-mission contract and the proposed Space Dispute Resolution Tribunal, change through the escalation protocol, and adjudication through the remote ADR panel with defined enforcement authority at each tier.

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[52]Nowak, above, Article 9 commentary
[53] Basheshar Nath AIR 1959 SC 149
[54] Fabio Bassan, The Law of Space Commerce (Ashgate, 2010); ICC Rules 2021, Article 28(6)
[55] Cesare Romano, The Peaceful Settlement of International Disputes; Patrick Atiyah, The Rise and Fall of Freedom of Contract (Oxford University Press, 1979)

Conclusion

This paper has examined the Space-Banishment Dilemma from its structural roots through the existing architecture that identifies responsibility without providing mechanisms, through creative non-coercive tools, and finally to the two imperfect last-resort processes. Neither banishment nor isolation is legally or ethically satisfactory as understood now. The tiered consent framework is a better available architecture[56]

India and the international community face the same issue but have different starting points. For the international community, the priority is institutional that is creating a Space Dispute Resolution Tribunal, expanding the IGA framework, and developing technical standards through UNOOSA. For the UK and established space travelling nations, existing regulatory powers can be used immediately. For India, the priority is both domestic and constitutional: a Space Activities Act that resolves the Article 21 waiver question is not a policy choice but it is a constitutional requirement, and the fact that India is building its space programme from scratch gives it the opportunity to design legal enforcement architecture in from the beginning[57]. The Space-Banishment Dilemma cannot be fully dissolved. For both India and the international community it can only be managed carefully, humanely, and before anyone leaves the ground. ADR can function as the primary legal system of the spatial frontier not by replacing enforcement, but by integrating it into a pre-designed, consent-based and institutionally supported legal architecture.

[56] Rüdiger Wolfrum, Legitimacy in International Law (Springer, 2008)
[57] Maneka Gandhi AIR 1978 SC 597; Basheshar Nath AIR 1959 SC 149; Bhupinder Chimni, International Law and World Order, 2nd ed. (Cambridge University Press, 2017)