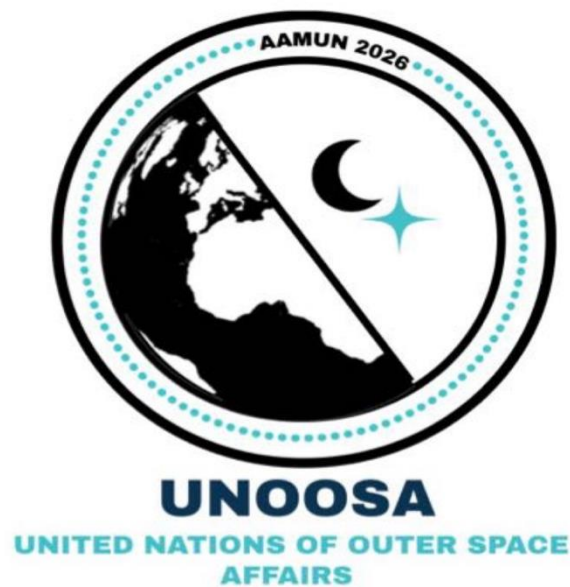


# AMMAN ACADEMY MODEL UNITED NATIONS 2026

United Nations Office for Outer Space Affairs (UNOOSA)



*Addressing International Regulations on Spacecraft Disposal Following China's  
Long March 5B Uncontrolled Re-entries*

AAMUN'26

## TABLE OF CONTENTS

| <b>Title</b>            | <b>page</b> |
|-------------------------|-------------|
| <b>Committee</b>        | <b>4</b>    |
| <b>General overview</b> | <b>5</b>    |
| <b>Timeline</b>         | <b>6-7</b>  |
| <b>Parties involved</b> | <b>8</b>    |
| <b>Previous efforts</b> | <b>9</b>    |
| <b>Glossary</b>         | <b>10</b>   |
| <b>Helpful links</b>    | <b>11</b>   |
| <b>Works cited</b>      | <b>12</b>   |

**Dear Delegates,**

Regarding the use of ChatGPT in AAMUN'26, we will allow its usage as a research engine only. Please be aware that it was last updated in June 2026. Therefore, there is a high probability that it will provide you with incorrect information about the topic. If used we encourage you to fact check the information to prevent any issues throughout the debate.

## **COMMITTEE**

The United Nations Office for Outer Space Affairs (UNOOSA) is the UN body responsible for promoting international cooperation in the peaceful uses of outer space. Headquartered in Vienna, Austria, it helps nations use space science for sustainable development. the office assists member nations in building domestic legal frameworks aligned with international space law and maintains the official UN Register of Objects Launched into Outer Space to ensure orbital transparency. Operationally, UNOOSA manages capacity-building initiatives like the "Access to Space for All" program to help developing nations harness space tech, coordinates emergency satellite imagery for global disaster management through UN-SPIDER, and drives policy to tackle modern orbital challenges like space debris and traffic management

## GENERAL OVERVIEW

Every rocket that reaches orbit leaves something behind. Most launch vehicles are designed so that their large lower stages fall into the ocean before completing a full orbit, and so that any stage which does reach orbit can restart its engine and steer itself into a controlled re-entry over an empty stretch of sea. The Long March 5B was designed differently. Its core stage carries the payload all the way to orbit and cannot reignite, which means that once its separated it remains in orbit and falls back to Earth whenever atmospheric drag brings it down. At roughly twenty-two tonnes, it ranked among the largest objects ever left to re-enter without control.

Between 2020 and 2022 China launched four of these vehicles, one test flight and three carrying modules of the Tiangong Space Station. Each produced an uncontrolled re-entry. Because the precise moment of re-entry could not be predicted until the final hours, tracking agencies could publish only a series of possible ground tracks crossing large populated regions, and the public across dozens of countries was left waiting to learn whether debris would fall nearby. On two occasions it did reach inhabited land.

Existing international law does not prohibit this. The 1967 Outer Space Treaty makes states internationally responsible for their national space activities and internationally liable for damage caused by their space objects, and the 1972 Liability Convention establishes that a launching state is absolutely liable for damage caused on the surface of the Earth. But liability is a remedy after the fact rather than a rule of conduct. No binding instrument requires a state to perform a controlled disposal, to limit the casualty risk of a re-entry, or even to share trajectory data with the countries beneath the predicted path. The instruments that address disposal directly are voluntary, and the safety benchmark most often cited internationally is a national standard rather than a treaty obligation.

Delegates should nonetheless be clear about what this body can produce. Resolutions in this committee pass or fail by vote, but what UNOOSA and COPUOS produce in reality are principles, guidelines and recommendations that acquire authority through broad acceptance and incorporation into national law rather than through direct legal force. This committee does not legislate, and a resolution that assumes it can bind states will not survive contact with the institution it represents.

Delegates are therefore asked to consider how the international community can move from voluntary guidance toward standards that actually constrain behaviour. A strong resolution will address controlled de-orbit requirements, an agreed casualty risk threshold, obligations to publish trajectory and re-entry data, advance notification of states beneath a predicted ground track, and a workable route to compensation when damage occurs. It will also account for the fact that the states bearing the greatest risk are rarely the states conducting the launches.

## **TIMELINE**

### **1972: The Liability Convention;**

The Convention on International Liability for Damage Caused by Space Objects established that a launching state is absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight. It remains the strongest binding instrument relevant to this topic, and also the least used.

### **1978: Cosmos 954;**

A Soviet nuclear-powered satellite re-entered over northern Canada, scattering radioactive debris across a large area. Canada brought the only claim ever made under the Liability Convention, seeking approximately six million Canadian dollars in cleanup costs and eventually settling for three million. The case took three years to resolve and remains the sole precedent for how the Convention operates in practice.

### **2007: Space Debris Mitigation Guidelines;**

COPUOS adopted a set of debris mitigation guidelines, endorsed the same year by the General Assembly. They recommend limiting debris released during normal operations, avoiding intentional destruction, and disposing of spacecraft and launch vehicle stages at the end of their operational life. They are explicitly voluntary and contain no compliance mechanism.

### **2019: Long-term Sustainability Guidelines;**

COPUOS adopted twenty-one guidelines for the long-term sustainability of outer space activities, covering registration, information sharing, conjunction assessment, safety of operations and end-of-life disposal. A working group continues to consider their implementation. Like the 2007 guidelines they are non-binding, and their effect depends entirely on states choosing to write them into national law.

### **May 2020: First Long March 5B re-entry and debris in Côte d'Ivoire;**

The maiden flight of the Long March 5B left its core stage in orbit. It re-entered uncontrolled on 11 May 2020, and debris including a pipe reported at around twelve metres in length came down on villages in Côte d'Ivoire, damaging buildings. No injuries were reported. This was the first clear indication that the vehicle's design would produce repeated uncontrolled re-entries of a very large object.

### **May 2021: The Tianhe core stage;**

The Long March 5B carrying the Tianhe module launched on 29 April 2021 and its core stage re-entered uncontrolled on 9 May over the Indian Ocean. Tracking centres in the United States and Europe published differing predictions in the final days, and the uncertainty window remained wide until shortly before re-entry. No debris was recovered, but the episode drew substantial international criticism and made clear that the 2020 event had not been an isolated failure.

### **July 2022: The Wentian core stage and debris in Southeast Asia;**

The Wentian module launched on 24 July 2022 and its core stage re-entered uncontrolled on 30 July over the Indian Ocean, with China stating that most debris burned up over the Sulu Sea. Fragments were subsequently recovered on the ground in Malaysia and Indonesia, some of them large enough to have caused serious damage or injury had they fallen on a village or a city. Experts had estimated in advance that the re-entry would exceed the commonly used one in ten thousand casualty risk threshold by at least a factor of ten. The NASA Administrator publicly criticised China for not sharing specific trajectory information as the stage fell.

#### **July 2022: The casualty risk study;**

Researchers publishing in Nature Astronomy estimated an approximately ten per cent probability of one or more casualties from uncontrolled rocket body re-entries over the following decade. They found that because of the orbital inclinations commonly used, abandoned rocket bodies are around three times more likely to come down at the latitudes of Jakarta, Dhaka and Lagos than at those of New York, Beijing or Moscow. They argued that assessing risk on a per-launch basis had allowed the cumulative problem to be ignored, that the accepted threshold does not account for low probability, high consequence outcomes such as a stage striking a dense city or a passenger aircraft, and that modern reignitable engines make most uncontrolled re-entries avoidable.

#### **Late 2022: The final Tiangong module;**

The launch of the Mengtian module completed the Tiangong station and produced the fourth uncontrolled Long March 5B core stage re-entry in under three years. By this point the sequence had become a recurring diplomatic incident rather than an isolated event, and calls for formal international rules had intensified.

#### **2022 to 2026: National tightening without international agreement;**

Individual states and agencies moved to strengthen their own rules, including a shortened post-mission disposal deadline adopted by the United States communications regulator and European commitments to debris-free operations. These measures bind only operators licensed by the states that adopted them. No binding international standard for spacecraft disposal or uncontrolled re-entry has been agreed, and the question remains before the COPUOS working groups.

## PARTIES INVOLVED

**China:** Operator of the Long March 5B and the state whose re-entries prompted this topic. Its position has been that the risk of harm was very low, that most debris burns up on re-entry, and that its activities complied with international law. That last claim is legally defensible, since no binding rule requires controlled disposal, and delegates should engage with it rather than dismiss it. Newer Chinese launch vehicles are being designed with different stage configurations.

**United States:** The most vocal critic of the Long March 5B re-entries, particularly of the failure to share trajectory data. It is also the largest launching state, and its own regulator has shortened the post-mission disposal deadline for satellites in low Earth orbit. Delegates should note that the one in ten thousand casualty threshold cited internationally originates in United States practice rather than in treaty law, and that it has on occasion been waived.

**Russia:** A major launching state with a long operational history and a substantial share of the abandoned rocket bodies currently in orbit. Historically cautious about binding constraints on launch activity. It is also the successor to the state responsible for Cosmos 954, the only incident ever to produce a claim under the Liability Convention.

**India:** A growing launch power with an expanding commercial launch sector and a stated commitment to debris mitigation. It sits between the interests of established launching states and those of countries that bear re-entry risk without conducting launches, and can speak credibly to both.

**Japan:** A launching state with an active role in COPUOS debris discussions and significant technical work on debris removal and end-of-life disposal. Generally supportive of strengthening the existing guidelines and of converting technical standards into shared practice.

**European states:** France, Germany, the United Kingdom, Italy and their partners operate through shared launch infrastructure and have committed to debris-free operations. Europe tends to combine technical leadership on debris mitigation with an institutional preference for binding multilateral rules, which makes it a natural sponsor of proposals that go further than voluntary guidance.

**States beneath the flight paths:** Countries at lower latitudes, including Mexico, Brazil, South Africa, Saudi Arabia, Indonesia and much of Africa and South Asia, carry a disproportionate share of the casualty risk while conducting few or no launches of their own. Their argument is that risk is being exported to them without consent, without prior notification and without any realistic route to redress. This is the strongest moral case available in the debate.

## **Previous efforts**

### **1. The Liability Convention and the Cosmos 954 precedent**

The 1972 Liability Convention is the only binding instrument that directly addresses harm caused by falling space objects, imposing absolute liability on the launching state for damage on the Earth's surface. Its weaknesses are structural. It operates only after damage has occurred, it requires the affected state to bring a claim through diplomatic channels, and it has been invoked successfully once, following Cosmos 954 in 1978. It creates no duty to avoid causing the damage, and offers nothing at all for the far more common outcome of debris falling in an unpopulated area or at sea.

### **2. The Space Debris Mitigation Guidelines**

Developed by the Inter-Agency Space Debris Coordination Committee and adopted by COPUOS in 2007, these guidelines recommend end-of-life disposal of spacecraft and launch vehicle stages and the limitation of debris released during normal operations. They have been widely incorporated into national licensing regimes and technical standards, and represent a real achievement in norm-building. They remain voluntary, contain no compliance mechanism, and do not specifically require that a re-entry be controlled.

### **3. The Long-term Sustainability Guidelines**

Adopted by COPUOS in 2019, the twenty-one Guidelines for the Long-term Sustainability of Outer Space Activities address registration, information sharing, conjunction assessment, safety of operations and end-of-life disposal. A working group continues to consider their implementation and to build capacity among states developing space programmes. As with the 2007 guidelines, they are non-binding and their effect depends on national adoption.

### **4. National regulation and casualty risk thresholds**

In the absence of international rules, several states have legislated for themselves. The United States shortened its required post-mission disposal period for satellites in low Earth orbit, and European agencies have committed to debris-free operations. Some states apply a one in ten thousand casualty expectation limit to re-entries. These measures work within their jurisdictions but bind only operators licensed there, apply inconsistent thresholds, and can be waived by the authority that set them. They cannot reach a launch conducted by a state that has adopted no such rule, which is precisely the situation this topic concerns.

### **5. Transparency and tracking arrangements**

Space situational awareness networks operated by the United States, the European Union and others track objects in orbit and publish re-entry predictions, and the United Nations Register of Objects Launched into Outer Space records the objects states have placed in space. These systems provided the warnings that allowed governments and the public to follow the Long March 5B re-entries in real time. They are nonetheless voluntary in what they share, uneven in coverage, and dependent on the cooperation of the operating state for the trajectory data that would make a prediction precise enough to act on.

## Glossary

**Uncontrolled re-entry:** The return of a spacecraft or rocket stage to Earth without any steering, so that the time and location of impact cannot be determined in advance.

**Controlled de-orbit:** A planned re-entry in which the operator reignites an engine to direct the object into a chosen area, normally a remote stretch of ocean.

**Core stage:** The main body of a launch vehicle. On most rockets it falls back to Earth before reaching orbit; on the Long March 5B it reached orbit with the payload.

**Launching state:** Under the Liability Convention, a state that launches or procures the launch of a space object, or from whose territory or facility it is launched. Liability attaches to this state.

**Absolute liability:** Liability that applies regardless of fault. The Liability Convention imposes it on launching states for damage caused on the surface of the Earth or to aircraft in flight.

**Space debris:** Non-functional objects in orbit, including spent rocket stages, defunct satellites and fragments produced by collisions or break-ups.

**Post-mission disposal:** The removal of a spacecraft or stage from a useful orbit at the end of its operational life, either by de-orbiting it or moving it to a designated disposal orbit.

**Casualty expectation:** A calculated estimate of the likelihood that a re-entry will injure or kill a person on the ground. A threshold of one in ten thousand is commonly applied by some national authorities.

**Low Earth orbit:** The region of space below roughly two thousand kilometres altitude, where most satellites and all crewed stations operate. Abbreviated LEO.

**Soft law:** Non-binding instruments such as guidelines, principles or declarations that shape state behaviour without creating enforceable legal obligations.

**Space situational awareness:** The tracking and cataloguing of objects in orbit in order to predict collisions and re-entries. Abbreviated SSA.

## HELPFUL LINKS

<https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introliability-convention.html>

<https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>

<https://www.unoosa.org/oosa/en/ourwork/topics/space-debris/index.html>

[https://www.unoosa.org/pdf/publications/st\\_space\\_49E.pdf](https://www.unoosa.org/pdf/publications/st_space_49E.pdf)

<https://www.unoosa.org/oosa/en/ourwork/copuos/index.html>

<https://www.nature.com/articles/s41550-022-01718-8>

<https://spaceflightnow.com/2022/07/30/long-march-5b-re-entry/>

<https://www.sciencedaily.com/releases/2022/07/220712141300.htm>

To contact us:

President: [Jehad.Al-Saheb@aa.jo](mailto:Jehad.Al-Saheb@aa.jo)

Chair: [L.mashriqi@aa.jo](mailto:L.mashriqi@aa.jo)

### Works Cited

- Byers, Michael, et al. 'Unnecessary Risks Created by Uncontrolled Rocket Reentries'. *Nature Astronomy*, vol. 6, no. 9, July 2022, pp. 1093–97, <https://doi.org/10.1038/s41550-022-01718-8>.
- Clark, Stephen. 'Re-Entry of Large Chinese Rocket Booster Spotted Over Borneo – Spaceflight Now'. *Spaceflightnow.Com*, 2026, <https://spaceflightnow.com/2022/07/30/long-march-5b-re-entry/>.
- 'Space Rocket Junk Could Have Deadly Consequences Unless Governments Act'. *ScienceDaily*, 2022, <https://www.sciencedaily.com/releases/2022/07/220712141300.htm>.
- United Nations. 'Committee on the Peaceful Uses of Outer Space'. *Unoosa.Org*, 2019, <https://www.unoosa.org/oosa/en/ourwork/copuos/index.html>.
- UNITED NATIONS OFFICE for OUTER SPACE AFFAIRS *Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space UNITED NATIONS*. 2010, [https://www.unoosa.org/pdf/publications/st\\_space\\_49E.pdf](https://www.unoosa.org/pdf/publications/st_space_49E.pdf).
- United Nations Office for Outer Space Affairs. 'Space Debris'. *Www.Unoosa.Org*, 2020, <https://www.unoosa.org/oosa/en/ourwork/topics/space-debris/index.html>.
- UNOOSA. 'Liability Convention'. *Www.Unoosa.Org*, 1971, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introliability-convention.html>.
- 'Outer Space Treaty'. *United Nations Office for Outer Space Affairs*, 19 Dec. 1966, <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html>.