SPACE DEBRIS FOUNDATION
International Law Framework for Space Debris

OUTER SPACE TREATY OF 1967
https://www.unoosa.org/pdf/gares/ARES_21_2222E.pdf

RESCUE AGREEMENT
https://www.unoosa.org/pdf/gares/ARES_22_2345E.pdf

REGISTRATION CONVENTION
https://www.unoosa.org/pdf/gares/ARES_29_3235E.pdf

LIABILITY CONVENTION
https://www.unoosa.org/pdf/gares/ARES_26_2777E.pdf

ARTEMIS ACCORDS
https://www.nasa.gov/wp-content/uploads/2022/11/Artemis-Accords-signed-13Oct2020.pdf

SECTION 12 - ORBITAL DEBRIS

1. The Signatories commit to plan for the mitigation of orbital debris, including the safe, timely, and efficient passivation and disposal of spacecraft at the end of their missions, when appropriate, as part of their mission planning process. In the case of cooperative missions, such plans should explicitly include which Signatory has the primary responsibility for the end-of-mission planning and implementation.

2. The Signatories commit to limit, to the extent practicable, the generation of new, long-lived harmful debris released through normal operations, break-up in operational or post-mission 7 phases, and accidents and conjunctions, by taking appropriate measures such as the selection of safe flight profiles and operational configurations as well as post-mission disposal of space structures.

UN GUIDELINES FOR LONG TERM SUSTAINABILITY OF OUTER SPACE ACTIVITIES
https://www.unoosa.org/res/oosadoc/data/documents/2018/aac_1052018crp/aac_1052018crp_20_0_html/AC105_2018_CRP20E.pdf

Guideline A.1 Adopt, revise and amend, as necessary, national regulatory frameworks for outer space activities.

Guideline A.2 Consider a number of elements when developing, revising or amending, as necessary, national regulatory frameworks for outer space activities.

Guideline A.3 Supervise national space activities.

Guideline A.4 Ensure the equitable, rational and efficient use of the radio frequency spectrum and the various orbital regions used by satellites.

Guideline A.5 Enhance the practice of registering space objects.

Guideline B.1 Provide updated contact information and share information on space objects and orbital events.

Guideline B.2 Improve accuracy of orbital data on space objects and enhance the practice and utility of sharing orbital information on space objects.

Guideline B.3 Promote the collection, sharing and dissemination of space debris monitoring information.

Guideline B.4 Perform conjunction assessment during all orbital phases of controlled flight.

Guideline B.5 Develop practical approaches for pre-launch conjunction assessment.

Guideline B.6 Share operational space weather data and forecasts.

Guideline B.7 Develop space weather models and tools and collect established practices on the mitigation of space weather effects.

Guideline B.8 Design and operation of space objects regardless of their physical and operational characteristics.

Guideline B.9 Take measures to address risks associated with the uncontrolled re-entry of space objects.

Guideline B.10 Observe measures of precaution when using sources of laser beams passing through outer space.

Guideline C.1 Promote and facilitate international cooperation in support of the long-term sustainability of outer space activities.

Guideline C.2 Share experience related to the long-term sustainability of outer space activities and develop new procedures, as appropriate, for information exchange.

Guideline C.3 Promote and support capacity-building.

Guideline C.4 Raise awareness of space activities.

Guideline D.1 Promote and support research into and the development of ways to support sustainable exploration and use of outer space.

Guideline D.2 Investigate and consider new measures to manage the space debris population in the long term.

IADC SPACE DEBRIS MITIGATION GUIDELINES
https://orbitaldebris.jsc.nasa.gov/library/iadc-space-debris-guidelines-revision-2.pdf

5.1 Limit Debris Released during Normal Operations.

5.2 Minimize the Potential for On-Orbit Break-ups.

5.2.1 Minimize the potential for post mission break-ups resulting from stored energy.

5.2.2 Minimize the potential for break-ups during operational phases.

5.2.3 Avoidance of intentional destruction and other harmful activities.

5.3 Post Mission Disposal.

5.3.1 Geosynchronous Region.

5.3.2 Objects Passing Through the LEO Region.

5.3.3 Other Orbits.

5.4 Prevention of On-Orbit Collisions.

ITU Recommendation ITU-R S.1003.2
https://www.itu.int/dms_pubrec/itu-r/rec/s/R-REC-S.1003-2-201012-I!!PDF-E.pdf

Recommendation 1: As little debris as possible should be released into the GSO region during the placement of a satellite in orbit.

Recommendation 2: Every reasonable effort should be made to shorten the lifetime of debris in elliptical transfer orbits with the apogees at or near GSO altitude.

Recommendation 3: Before complete exhaustion of its propellant, a geostationary satellite at the end of its life should be removed from the GSO region such that under the influence of

perturbing forces on its trajectory, it would subsequently remain in an orbit with a perigee no less than 200 km above the geostationary altitude.

Recommendation 4: The transfer to the graveyard orbit removal should be carried out with particular caution in order to avoid radio frequency interference with active satellites.

UNCOPUOS SPACE DEBRIS MITIGATION GUIDELINES
https://www.unoosa.org/pdf/publications/st_space_49E.pdf

Guideline 1: Limit debris released during normal operations.

Guideline 2: Minimize the potential for break-ups during operational phases.

Guideline 3: Limit the probability of accidental collision in orbit.

Guideline 4: Avoid intentional destruction and other harmful activities.

Guideline 5: Minimize potential for post-mission break-ups resulting from stored energy.

Guideline 6: Limit the long-term presence of spacecraft and launch vehicle orbital stages in the low-Earth orbit (LEO) region after the end of their mission.

Guideline 7: Limit the long-term interference of spacecraft and launch vehicle orbital stages with the geosynchronous Earth orbit (GEO) region after the end of their mission.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
https://www.unoosa.org/documents/pdf/spacelaw/sd/ISO20180921.pdf

23312 (Document type: international standard) supports compliance with those clauses in ISO 24113 that are relevant to spacecraft. ISO 23312 defines detailed space debris mitigation requirements for the design and operation of spacecraft.
https://www.iso.org/standard/75221.html

ISO 20893 (Document type: international standard) supports compliance with clauses in ISO 24113 that are relevant to launch vehicle orbital stages. ISO 20893 defines detailed space debris mitigation requirements for the design and operation of launch vehicle orbital stages.
https://www.iso.org/standard/73023.html

ISO 11227 (Document type: international standard) supports compliance with those clauses in ISO 24113 that are relevant to space debris impact risk assessment. ISO 11227 describes an experimental procedure for acquiring data to characterize the ejecta released when spacecraft materials are impacted by hypervelocity projectiles representative of space debris and meteoroids. Such data contribute to informed decisions being made with regard to the selection of suitable materials for external surfaces on spacecraft.

https://www.iso.org/standard/57535.html

ISO 16126 (Document type: international standard) supports compliance with those clauses in ISO 24113 that are relevant to space debris impact risk assessment. ISO 16126 defines requirements and a procedure for assessing the survivability of an unmanned spacecraft against space debris and meteoroid impacts to ensure the survival of critical components required to perform post-mission disposal. ISO 16126 also describes two impact risk analysis procedures that can be used to satisfy the requirements.
https://www.iso.org/standard/55720.html

ISO 13526 (Document type: international standard) specifies a standard message format for use in exchanging spacecraft tracking data used in orbit determination between space agencies/operators. Such exchanges are used for distributing tracking data output from routine interagency cross-supports where spacecraft missions managed by one agency are tracked from a ground station managed by a second agency. These data exchanges are critical to the development of comprehensive, timely, accurate space catalogs that are foundational to actionable SSA.
https://www.iso.org/standard/53984.html

SPACE DEBRIS MITIGATION STANDARDS ISO 19389 (Document type: international standard) specifies a standard message format for use in exchanging spacecraft conjunction information between originators of conjunction assessments and satellite owner/operators and other authorized parties. Such exchanges provide critical information to satellite owner/operators to enable timely collision avoidance decisions. ISO 19389 is applicable to satellite operations in all environments in which close approaches and collisions among satellites are concerns.
https://www.iso.org/standard/64784.html