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Uses of Outer Space**  
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**Matters relating to the definition  
and delimitation of outer space**

## **Analytical summary of the replies to the questionnaire on possible legal issues with regard to aerospace objects**

**Note by the Secretariat**

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\* A/AC.105/C.2/L.247.



## **I. Introduction**

1. At the forty-second session of the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space, in 2003, the Working Group on Matters Relating to the Definition and Delimitation of Outer Space agreed that the Secretariat should prepare, to the extent possible, an analytical summary of the replies received from Member States to the questionnaire on possible legal issues with regard to aerospace objects (A/AC.105/635 and Add.1-10). The Working Group agreed that the summary should be considered by the Working Group at the next session of the Legal Subcommittee, with a view to taking a decision on the need to continue consideration in the Working Group of the questionnaire on aerospace objects (A/AC.105/805, annex II, para. 8). The report of the Working Group was endorsed by the Legal Subcommittee.
2. The present summary, prepared by the Secretariat in response to that request, synthesizes the replies to the questionnaire on possible legal issues with regard to aerospace objects received from Member States since the questionnaire was first circulated in 1996.

## **II. Analytical summary of the replies to the questionnaire on possible legal issues with regard to aerospace objects**

### **Question 1. Can an aerospace object be defined as an object which is capable both of travelling through outer space and of using its aerodynamic properties to remain in airspace for a certain period of time?**

3. The following Member States submitted replies to question 1: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, Republic of Korea, Russian Federation, Slovakia, South Africa, Syrian Arab Republic, Turkey and Yemen.
4. Some States endorsed the definition provided in question 1, while other States presented comments and recommendations regarding the definition. Those comments and recommendations can be summarized as follows:
  - (a) The definition of “for a certain period of time” would need to be clarified further as it was too vague an expression;
  - (b) The proposed definition was based on just two criteria: the capability of an object to travel through outer space and its capability to remain in airspace for a certain period of time. As aerospace objects became more sophisticated in design, their definition would have to be based on additional criteria;
  - (c) In order to underline the primary function of aerospace objects and serve space activities, it would be necessary to complete the proposed definition by adding, at the end, the following phrase: “for [primarily] [exclusively] space purposes”;

(d) Supplementary information should be provided on the characteristics of the aerospace object in order to ensure that the legal definition was consistent with international space law. Moreover, the use of the term “aerospace object” could cause confusion with other commonly used terms, such as “aircraft”, “spacecraft” or “space object”, and if the term “aerospace object” was to be used, it should be defined in relation to other terms found in international legal texts;

(e) The definition should continue to be considered in the future, as the term “aerospace object” covered different types of aerospace vehicle, some of which had already been operative or tested, while others were only at the design, planning or experimental stage;

(f) The definition should be made more precise by including a reference to the general purpose of aerospace objects or the type of activity they normally would carry out. Similarly, the scope of the words “for a certain period of time”, which could prove to be vague, should be more specific;

(g) The suggested definition of an aerospace object was acceptable, insofar as the aerospace object was performing a space mission.

5. Another State noted that an aerospace object could also “stand still” at certain special and strategically important positions such as the Lagrangian points of any “binary” celestial system such as the Earth-Moon or Earth-Sun without any energy expenditure. That State suggested that the definition should therefore include the words “or remaining in” after the words “travelling through”. That State further noted that “flights” in the atmosphere of other planets that could take place in the near future should not be excluded from the definition and that special precautions for such flights might need to be considered.

6. The view was expressed that basing the definition solely on the dual capability of moving through airspace and of travelling through outer space could make the definition too broad and thus encompass a large number of objects that, by reason of other specific characteristics, might require a separate regime. However, the view was expressed that if the intention was to include all space transportation systems, such as missiles, rockets and space shuttles, as well as their payload, then the definition set out in question 1 was appropriate. That State noted that that definition also included ballistic missiles, future hypersonic transportation systems and so on, which might not have been the intention of the definition, and that more information in that regard would be needed.

7. The view was expressed that an object might be designated a space object only if it was designed for exploitation in outer space, which should enjoy the same status as the high seas.

8. The view was expressed that the words “remain in airspace for a certain period of time”, provided in the definition, could be misinterpreted and understood to mean that the aerospace object was capable of remaining stationary in airspace. It was therefore suggested that the words “remain in airspace” be substituted with the words “move in airspace”.

9. Some States noted that the proposed definition did reflect the technological capabilities of an aerospace object to remain in airspace and travel through outer space. In that regard, the view was expressed that the definition did not shed any

light on the functionality of an aerospace object and that the definition should include the purpose of the mission.

10. The view was expressed that the definition should be formulated in cooperation with the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space.

11. The view was expressed that, although the definition clearly excluded objects of natural origin, it should be made clear that an “aerospace object” was an object designed to operate in outer space that, by virtue of its aerodynamic properties, only travelled through airspace for the purpose of reaching outer space or of returning to Earth. That State suggested that it would be more accurate to refer to a “spacecraft” or “space vehicle”, which referred to a man-made device, in order to distinguish such an object from an “aerospace object”, which could also include a natural object.

12. Some States proposed the following alternative definitions:

(a) An aerospace object is an object which is capable both of travelling through outer space and of using its aerodynamic properties to move through airspace;

(b) An aerospace vehicle is any object that, with self-propulsion and steering systems, is capable of travelling to outer space and using its aerodynamic properties to remain in airspace for a certain period of time and in some cases re-entering the Earth’s atmosphere;

(c) An aerospace object could be defined as an object capable of travelling in outer space and moving in airspace in continuous flight during the launch phase or the return to Earth;

(d) An aerospace object is an object capable of flying either in outer space or in airspace and also capable of carrying out activities in both environments;

(e) An aerospace object is a human-made object that can proceed to any altitude and that is subject to human control at any altitude as regards its altitude, direction and speed.

**Question 2. Does the regime applicable to the flight of aerospace objects differ according to whether it is located in airspace or outer space?**

13. The following Member States submitted replies to question 2: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, Republic of Korea, Russian Federation, Slovakia, South Africa, Syrian Arab Republic, Turkey and Yemen.

14. Some States agreed that the regime applicable to the flight of aerospace objects should differ according to whether it was located in airspace or outer space. Some of those States based their view on the following:

(a) The legal requirements are different as a result of the fact that aerospace objects operate in different environments and have different functions;

(b) An aerospace object could be interpreted as flying in airspace and travelling in outer space. In accordance with article 1 of the Convention on International Civil Aviation of 1944 (the “Chicago Convention”), every State has complete and exclusive sovereignty over the airspace above its territory. However, outer space is not subject to national appropriation and no single State can claim sovereignty over outer space or the celestial bodies. Therefore, aerospace objects that operate in airspace are covered by international air law and those that operate in outer space should be governed by the principles of international space law;

(c) There are important differences in physical constraints and physical laws that apply in each medium. In particular, the landing conditions of aerospace objects would need to be clearly defined;

(d) The reply to this question would be positive if the term “is located” is understood to mean a real flight of a craft in airspace on the basis of the principles and technology of aeronautics on the one hand, and the movement of an object to, in and from orbit on the basis of the principles and technology of astronautics on the other;

(e) While in airspace the regime is aerobic (use of air for combustion, for example, jet-propelled aircraft) and in outer space the regime is anaerobic (oxygen is carried on the vehicle, for example, a rocket).

15. Other States did not agree that the regime applicable to the flight of aerospace objects should differ according to whether it was located in airspace or outer space. Those States based their view on the following:

(a) As the launch remains a space activity, it should be governed by the same regime. Airspace is merely the intermediate medium through which the aerospace object travels;

(b) Aerospace objects travel above airspace, which is beyond the territorial lands and waters of any State;

(c) The regime would be determined by the nature of the activity (the latter to be regulated by a convention or other agreement) rather than by the status of the space in which the object was located at any given time.

16. Some States believed that it was necessary to consider further development of certain norms of international air law and international space law, specifically those relating to international liability for any damage sustained, rescue of crew, and so forth.

17. Some States were of the view that a new special regime for flights of aerospace objects should be developed, taking into account such aspects as the technical properties of aerospace objects, which were capable of both moving through airspace and travelling through outer space, and technical developments realized and yet to be attained.

18. Some States noted that transit conditions were not invariably the same and their application depended on the law of individual States. Those States believed that crossing the Earth’s atmosphere was operational in nature and that it did not affect the mission’s ultimate purpose under a unified regime.

19. Another State believed that the regime applicable to the flight of aerospace objects did not differ according to whether the object was located in airspace or in outer space.

20. Some States preferred the approach of determining the function and purpose of aerospace objects. Those States believed that, rather than formulating a regime for which the regulated subject was linked to the flight of the object or the place in which it travelled, it would be better to consider the object in terms of its purpose and function. In that regard, States noted the following:

(a) If an aerospace object is designed for exploration and use in outer space, it would be logical to apply the provisions of space law, particularly aspects relating to liability in the event of damage. If, however, the aerospace object is used for purposes connected with air traffic, international air traffic law could be applicable. The duality of use could cause ambiguities and create conflicts in the applicable law in the event of an accident;

(b) The regime applicable to flight should depend on the purpose of the mission of an aerospace object. The air law regime should apply to craft used for Earth-to-Earth transport of material or persons. Where the main purpose of the mission of an aerospace object is the exploration of outer space, space law should prevail. The regime applicable to the flight of an aerospace object could be determined based on whether that object is located in outer space or in airspace;

(c) An aerospace object functions as a space object during its launch and orbit, but operates as an aircraft during its return to the atmosphere and its landing. That is, its design features and functionality enable it to operate in both airspace and outer space.

21. Some States noted that if an aerospace object operated in areas subject to the jurisdiction of a State, it would be subject to the laws of that State and international air law. Some of those States stressed that, if the passage of an aerospace object through the airspace of another State was part of its direct passage to or from outer space during launch or return for landing, and was only incidental thereto, it would be subject to the principles of international space law.

22. The view was expressed that aerospace objects launched into outer space, even though they incidentally passed through airspace on their way to their destination in outer space, remained associated with the launching State. Therefore, the space regime and not the air regime of the State through whose airspace the aerospace object passed incidentally, would apply to aerospace objects.

**Question 3. Are there special procedures for aerospace objects, considering the diversity of their functional characteristics, the aerodynamic properties and space technologies used, and their design features, or should a single or unified regime be developed for such objects?**

23. The following Member States submitted replies to question 3: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, Republic of Korea, Russian Federation, Slovakia, South Africa, Syrian Arab Republic, Turkey and Yemen.

24. Some States proposed to adopt a legal regime for aerospace objects. Those States referred to such a regime under different terms, for example, “single”, “multiple”, “unified” and “special”, and based their view on the following:

(a) Such a regime would be required for the identification of aerospace objects and to clarify their legal status, taking into account the rules regarding territorial sovereignty of States;

(b) The regime should be developed following in-depth study, since advances in aerospace technology could mean that in future a specific regime would need to be established to take into account situations not considered under current international air and space law;

(c) The regime should be established on the basis of existing treaties, particularly with regard to liability;

(d) The regime could be useful also for determining liability in the case of damage caused to third parties;

(e) The regime would offer homogeneity in the applicable regimes, as well as simplicity with regard to the status of space objects;

(f) The regime could help identify aerospace objects and their legal status without violating current air and space law;

(g) The regime should be prepared in order to prevent legal disorder, which might arise from outer space activities that increasingly use aerospace objects. Furthermore, such special procedures would need to be prepared by a neutral relevant international organization;

(h) Special procedures for aerospace objects would be required with respect to registration, liability and traffic control;

(i) As a result of ongoing advances in technology, situations could arise that would not be provided for in the current air and space regimes and, accordingly, the creation of a regime could take into account such new situations and clarify their legal status, with allowance made for the territorial sovereignty of States;

(j) Considering the diversity of space objects, their characteristics and uses and the consequent difficulty of establishing a unified regime for them, a regime should be adopted for each category of space object.

25. The view was expressed that, while a unified regime would be necessary for all space objects, as the properties of a space object resembled those of an aircraft, the application of aeronautical provisions should be considered during the time the space object remained in airspace.

26. The view was expressed that, unless a single special regulation for aerospace objects was developed, such objects, if capable of being used for both purposes, would indeed fall under two different legal regimes with regard to the two categories of activity in the space surrounding the Earth. That State noted that, currently, the law governing aeronautics and the law governing astronautics differed substantially, both in their essential principles and in their specific rules.

27. The view was expressed that, at the current stage of development of aerospace objects, there was no urgent need to develop such procedures. As those objects became more and more diversified and their number increased, and as the probability increased of various incidents occurring in connection with their operation, the question of supplementing and developing norms in the area of space and air law to take into account the special features of aerospace objects might arise. At that stage, it would be important to consider whether or not procedures should be brought into effect for notifying States of the passage of aerospace objects through airspace over their territories.

28. The view was expressed that, if the concept of “aerospace objects” was not extended to include the proposed “space-only objects” (that is, an object with all the capabilities of an aerospace object, but not capable of flying in airspace), a regime similar to aerospace objects could be considered. That State believed that, since special arrangements regulating the diversity of such objects did not exist in the applicable international law and considering probable future technological developments in that area, a single and unified regime did not seem necessary at the current stage.

29. The view was expressed that the best solution was to improve the existing legal framework by including concepts such as free passage or innocent passage in space law and improving those concepts in air law. That State also suggested that speed patterns for flights in airspace should be revised.

30. The view was expressed that the obligations of States conducting activities in outer space were identical, irrespective of the nature of the aerospace object concerned.

**Question 4. Are aerospace objects while in airspace considered as aircraft, and while in outer space as spacecraft, with all the legal consequences that follow therefrom, or does either air law or space law prevail during the flight of an aerospace craft, depending on the destination of such a flight?**

31. The following Member States submitted replies to question 4: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines,



Republic of Korea, Russian Federation, Slovakia, South Africa, Syrian Arab Republic, Turkey and Yemen.

32. Some States were of the view that space law should prevail over the whole flight of aerospace objects. Those States provided examples where space law would be the primary source of regulation, in particular:

(a) Where aerospace objects were destined to serve primarily outer space activities. In such cases, space law would prevail with regard to the flight of an aerospace object during all the phases of its movement, that is, from the time the object takes off (from the Earth or from a platform) until it arrives at its destination (entry into orbit or landing);

(b) Given the unique nature of aerospace objects, space law should prevail while aerospace objects are in outer space. While in outer space, an aerospace object should be considered a spacecraft with all the legal consequences that follow therefrom, including the obligations arising under the Convention on Registration of Objects Launched into Outer Space (General Assembly resolution 3235 (XXIX), annex, the "Registration Convention"). The destination of such a flight could also be taken into consideration when the aerospace object is located in airspace during most of the time of its flight and is used for Earth-to-Earth transport.

33. Some States noted that, until special procedures for aerospace objects were developed, an aerospace object flying in airspace, especially through another State's territorial airspace, would be regarded as an aircraft and an aerospace object located in outer space would be regarded as a space object and subject to space law. However, the view was expressed that the manner in which those rules were applied would differ according to the nature of a space object and air law should provide for special norms governing the flight of space objects travelling through airspace in order to reach outer space.

34. Some States considered the purpose and/or destination of aerospace objects as an important factor in determining whether an object would be considered an aircraft or an aerospace object. Aerospace vehicles serving the purpose of air transportation, even if they were capable of flying for a certain period in outer space, would continue to be considered aircraft. Similarly, aerospace objects flying through airspace for the purpose of their ascent to or descent from outer space would be considered spacecraft. However, another State noted that the classification of an object as an aircraft or aerospace object on the basis of the location or destination of the flight could cause confusion and give rise to difficulties in practical implementation.

35. The view was expressed that aerospace objects, while in airspace, were regarded as aircraft, and, while in outer space, as spacecraft with all the legal consequences that followed therefrom, provided that, as regards questions of safety and liability, higher standards should apply. However, where the passage through airspace was part of a direct and continuous journey to or from outer space, the object should be regarded as a spacecraft. Another State was of the view that aerospace objects should not be regarded as aircraft while remaining in airspace. The original destination of the object should be the decisive factor in determining whether an object should be designated an aerospace object or an aircraft. Once the obligation of information had been respected, the destination of the flight should not enter into account.

36. Some States supported the establishment of a special regime that would be applicable to the entire flight. Some of those States suggested that the purpose of the object and the destination of the particular flight should be taken into account. Other States were of the view that, under current international law, a spacecraft was considered to be an object travelling in outer space and that an aircraft was an object travelling in airspace. A spacecraft travelling in airspace during its ascent or descent could be regarded as an aircraft during that part of its journey and any special regime established for aerospace objects would need to define the scope of the legal consequences when that object travelled through airspace.

37. The view was expressed that aerospace objects in airspace should not be regarded as aircraft, since special conditions would always apply to their design, manoeuvre and landing procedures. Existing international aviation rules, as well as national legislation and air traffic arrangements, would nevertheless need to be taken into account.

**Question 5. Are the take-off and landing phases specially distinguished in the regime for an aerospace object as involving a different degree of regulation from entry into airspace from outer space orbit and subsequent return to that orbit?**

38. The following Member States submitted replies to question 5: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, Republic of Korea, Russian Federation, South Africa, Syrian Arab Republic, Turkey and Yemen.

39. Some States agreed that the take-off and landing phases were distinguishable and involved a different degree of regulation, for the following reasons:

(a) If an aerospace object moving through airspace was regarded as an aircraft, both take-off and landing would be regulated by the norms of air law, since air law regulated the technical act of air navigation. Should a special regime be established for aerospace objects, account would have to be taken of the technical characteristics of take-off and landing of the various types of aerospace object in order to determine whether a single regime would be appropriate or whether different norms should apply to the two phases, depending on whether or not there was motion through airspace;

(b) The phases should be distinguished, particularly in the case of an aerospace object that was capable of taking off and flying as an aircraft, including launching itself into outer space from airspace and subsequently operating as a spacecraft; also in the case of an object launched into outer space that, after re-entry into the Earth's atmosphere, could operate independently as an aircraft and thereby delay its landing;

(c) As the take-off and landing phases of an aerospace object were considered distinguishable, both space law and air law should dedicate special attention to those phases. For instance, the concepts of free passage, innocent passage and speed patterns should be considered.

40. Other States disagreed that the take-off and landing phases were distinguishable and involved a different degree of regulation, for the following reasons:

(a) In the absence of operational aerospace objects and, hence, of practice, there was no rule of customary international law that allowed passage without prior consent through foreign airspace of aerospace objects following re-entry into the Earth's atmosphere;

(b) If the aim were simplification of the regime, there would be no need to make special provision for the take-off and landing phases;

(c) There was no reason for a different degree of regulation, as all the phases of movement of an aerospace object should be regulated by space law.

41. The view was expressed that, under the present legal system, there was no special regime that distinguished the take-off and landing phases of an aerospace object as involving a different degree of regulation from entry into airspace from outer space orbit and subsequent return to that orbit.

42. Some States were of the view that, in case of passage through the territorial airspace of another State, international air law or the national law of relevant State could be applied to the aerospace object in relation to that State's sovereignty and security problem.

43. The view was expressed that, whenever an aerospace object can travel in airspace for a certain time, a different degree of regulation was justified, although the general norms of space law would govern the greater part of the flight of such an object.

44. The view was expressed that an aerospace object capable of flying as an aircraft in airspace and moving as a spacecraft in outer space should operate in conformity with air law or space law in the respective parts of air and outer space. The regulation of the take-off and landing phases for such objects, which could be different for either of those manoeuvres owing to their differing performances, should be developed in future in connection with a general space traffic regulation.

45. The view was expressed that, although there were currently no provisions in effect that specifically regulated aerospace flights at the stage of entry into national airspace, only the object's innocent passage through airspace should be regulated in the interest of uniformity.

46. Some States believed that special legal procedures or rules should be foreseen in a regime applicable to aerospace objects and that the following should be taken into account:

(a) Such a regime would be particularly important for the landing phase, which could sometimes, for various reasons, give rise to damage, especially if, during that phase, the aerospace object crossed the airspace of another State;

(b) Such rules could provide for a right of innocent passage during take-off and landing, as well as for air traffic control procedures for travelling through domestic airspace and international airspace;

(c) A distinction would have to be drawn between the take-off and landing phases and the phases of entry into airspace from orbit and return to orbit from airspace.

**Question 6. Are the norms of national and international air law applicable to an aerospace object of one State while it is in the airspace of another State?**

47. The following Member States submitted replies to question 6: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, Republic of Korea, Russian Federation, Slovakia, South Africa, Syrian Arab Republic, Turkey and Yemen.

48. Some States agreed that the norms of national and international air law would be applicable to an aerospace object of one State while it was in the airspace of another State. Those States also noted the following:

(a) The norms of national and international air law would not apply if the entry into such airspace was only incidental to its direct take-off or landing;

(b) If there were too many differences in the national laws of States, international air law could be amended to unify those rules and regulations to make the flight of an aerospace object possible while it was in the airspace of another State;

(c) Currently, aerospace objects travelling through airspace were regarded as aircraft and therefore subject to the norms of national and international air law;

(d) The applicable norms should be special norms consistent with the nature of a space object, whose characteristics and objectives were different from those of aircraft;

(e) If an aerospace object were to pass through the airspace of another State, that State should be informed beforehand and in detail of the launching sites and flight paths, and the flight should be coordinated as well;

(f) International air law as well as relevant domestic air law would be applicable for purposes of national security or aerial safety as long as the object had characteristics both of an aeroplane and a space object.

49. The view was expressed that the norms of national and international air law would not apply as innocent passage of aerospace objects should be governed by space law. International agreements should be concluded to deal with emergency situations, especially in cases where an aerospace object would be obliged to land in, fly over, enter or leave the territory of a State other than the launching State. Another State expressed the view that, if a spacecraft overshot and flew over airspace outside its outgoing and return flight paths, then it should no longer be covered by space law.

50. The view was expressed that the possibility of codifying in treaty form the right of peaceful (innocent) passage through the airspace of another State when the object entered orbit and when it returned from orbit could be examined. That State noted that the special features of Earth-to-Earth and Earth-orbit flights would need to be taken into consideration, particularly in cases when it would be impossible, in practical terms, for objects performing Earth-orbit flights to meet all the different requirements of air law.
51. The view was expressed that it would be useful to examine such flight activity with respect to the existing rules of air navigation in order to find solutions to possible interferences.
52. The view was expressed that aerospace objects were subject to space law and should be treated as spacecraft while in the airspace either of the launching State (as defined in article I of the Registration Convention), the landing State (including in cases of emergency) or any other third State. That State also noted that the registration by a State in its appropriate registries of any flying object as either an aircraft or a spacecraft would be the formal criterion for determining the applicable law. Nevertheless, in both cases, air law norms concerning the safety of air navigation should be applicable.
53. The view was expressed that the norms of national and international air law would only be applicable to those aerospace objects which would be capable of serving the purpose of aeronautics and not to those aerospace vehicles which would essentially be considered space objects. Even aerospace objects serving the purpose of astronautics would have to observe some of the norms of air law, particularly with regard to the principle of complete and exclusive sovereignty over the airspace of another State while moving through it.
54. The view was expressed that a State was entitled or required to exercise jurisdiction over an object travelling through its airspace on the basis of the principle of territoriality or nationality, or both, unless such exercise was prohibited under international law. In that regard, that State noted further that an aerospace object would be subject to the law of the State where it was physically present (principle of territoriality), that it would be subject to the law of the State where the object was registered (principle of nationality), that the application of the principle of territoriality or nationality for the purposes of damage to passengers and cargo under the Convention for the Unification of Certain Rules relating to International Carriage by Air would depend on whether the aerospace object was registered as an aerospace object or an aircraft.
55. The view was expressed that this question showed the importance of the delimitation of airspace and outer space. Since a State had sovereignty over the airspace above its territory, its national air law would be applicable to a foreign aerospace object. That State concluded that, in that case, authorization for the passage of an aerospace object of one State through the airspace of another State should be required.

**Question 7. Are there precedents with respect to the passage of aerospace objects during take-off and/or re-entry into the Earth's atmosphere and does customary international law exist with respect to such passage?**

56. The following Member States submitted replies to question 7: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, Republic of Korea, Russian Federation, Slovakia, South Africa, Syrian Arab Republic, Turkey and Yemen.

57. Some States provided the following precedents with respect to the passage of aerospace objects during take-off and/or re-entry into the Earth's atmosphere:

(a) Currently evolving international practice showed that a State's sovereignty did not extend to the space located above the orbit of the lowest perigee of an artificial Earth satellite (approximately 100 km above sea level). Only in a few cases had space objects flown over the territories of foreign States. Where the object had flown at an altitude below 100 km, the registering State had furnished, on the basis of goodwill, the relevant information to the State whose territory had been overflown. For example, in March 1990, the United States of America communicated to the former Union of Soviet Socialist Republics (USSR) information regarding the final flight stage of the Atlantis space shuttle. The information furnished contained general data on the trajectory of the planned flight of the shuttle above a specific area of the eastern regions of the former USSR and indicated the period of time during which the craft was expected to be located above the territory of that country during its descent from orbit, its minimum flight altitude in that airspace before its entry into the Earth's atmosphere above open sea and the technical details of the shuttle's state. The information was received only a few hours before the overflight took place and was transmitted as a courtesy. An agreement was reached that the information furnished should not be deemed to set a precedent. Nonetheless, the transmission of that kind of information provides a broad outline of the procedures that could be followed in notifying States;

(b) Such passage was provided for in the Agreement between the Russian Federation and the Republic of Kazakhstan of 28 March 1994 on the Main Principles and Conditions for Utilization of the Baikonur Launch Site;

(c) Other cases involved the recovery of satellite wreckage. In Argentina, a country owning satellite wreckage cooperated in its recovery by offering payment and compensation for the damage caused by the object falling to Earth. In addition, the norms of international space law, in particular the Convention on International Liability for Damage Caused by Space Objects (General Assembly resolution 2777 (XXVI), annex, "the Liability Convention") and the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Assembly resolution 2345 (XXII), annex) set out provisions to regulate such matters;

(d) During its only flight, the space shuttle Buran of the former USSR passed through Turkey's airspace for a part of its re-entry phase. However, the lack of autonomous manoeuvrability of the Buran prevented the space shuttle from being

considered an aircraft. Even if the passage of the Buran through Turkey's airspace without prior consent could have been based on a rule of law, the same rule of law would not have applied to aerospace objects designed to have autonomous manoeuvrability;

(e) The de-orbiting of the Russian Federation's orbital space station MIR, the case of the United States Skylab Space Station and incidents of fragments of space objects falling onto a third State's territory were also mentioned.

58. Other States were of the view that there were no precedents with respect to the passage of an aerospace object after re-entry into the Earth's atmosphere. Some States noted that there were no customary international laws or precedents with respect to the passage of an aerospace object after re-entry into the Earth's atmosphere.

59. The view was expressed that the return to Earth of space shuttles through the airspace of third countries could be regarded as precedents with respect to innocent passage. Another State was of the view that the Space Shuttle could not be regarded as an aerospace object, since it was not strictly capable of motion through airspace.

60. The view was expressed that the provisions of the Liability Convention were applicable to space objects and served as customary international law in that regard. That State noted, however, that no such customary international law for the passage of aerospace craft existed and that it would be important to address that issue in order to remove any misunderstanding about which law would be applicable.

61. The view was expressed that provisions of customary international law with respect to the passage of aerospace objects after re-entry into the Earth's atmosphere were currently in the process of being developed.

62. The view was expressed that there was not yet sufficient evidence of a general practice regarding the right of passage for an ascending or descending aerospace object and that therefore such practices did not constitute customary international law. Other States were of the view that, as no objection or opposition had been raised by those States whose airspace the space objects had flown through, a customary international law right had been established with respect to such passage.

63. Other States stressed that the fact that most of those States had not raised any objection to the passage of space objects over their airspace did not signify their approval of the passage as international practice or as a precedent; some of those States did not have any information about the passage and no special perceptible disadvantage with the passage could be identified at the time.

**Question 8. Are there any national and/or international legal norms with respect to the passage of aerospace objects during take-off and/or re-entry into the Earth's atmosphere?**

64. The following Member States submitted replies to question 8: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines,

Republic of Korea, Russian Federation, Slovakia, South Africa, Syrian Arab Republic, Turkey and Yemen.

65. Some States provided the following as examples of national and/or international legal norms with respect to the passage of aerospace objects during take-off and/or re-entry into the Earth's atmosphere:

(a) It was noted that article 19 of the Russian Federation Act on Space Activity, adopted in 1993, provided that a space object of a foreign State might make a single innocent flight through the airspace of the Russian Federation for the purpose of that object's entry into orbit around the Earth and subsequently into outer space, and also for the purpose of its return to Earth, provided that the competent authorities of the Russian Federation were given sufficient advance notice of the time, location and path of such a flight and other information pertaining to it. However, the individual aspects of such passage (such as international liability, rescue of astronauts, return of objects, and so forth) were either dealt with or addressed by the multilateral agreements in effect;

(b) The Act on Space Activity of the Republic of Kazakhstan currently being drafted, the Australian Space Activities Act of 1998 and the five United Nations Treaties on Outer Space were referred to in relation to the existence of national and/or international legal norms with respect to the passage of aerospace objects during take-off and/or re-entry into the Earth's atmosphere. Norms of that kind were said to appear also in international space agreements;

(c) It was noted that, to the extent that it was accepted that the provisions of air law were applicable to space objects while in airspace, articles 1827-1840 of Colombia's Commercial Code (aeronautical section) contained provisions on, inter alia, damage to third parties on the surface of Earth;

(d) It was noted that the United States Commercial Space Act of 1998 (amendment of the Commercial Space Launch Act of 1984, 49 United States Code (USC) 70101 et seq.) contained provisions with respect to re-entry in the framework of the licensing system for space activities;

(e) It was noted that with reference to the relevant articles of the Turkish Civil Aviation Code and some national practices, space objects in airspace were considered to fall under the same rules as aircraft and other flying objects;

(f) While Chile did not have any specific norms, national airspace was considered to be under the sovereignty of the State of Chile and existing air safety norms could be considered applicable.

66. The view was expressed that no specific national and/or international legal norms had been developed with respect to the passage of space objects after re-entry into the Earth's atmosphere.

67. The view was expressed that a detailed study of the issue was needed to develop a set of norms that could take into account the complexity of characterizing aerospace objects. That State noted that the sole application of air law or space law could not adequately take into account all the situations that could arise. Another State was of the view that the current national and international legal norms should be applied with respect to aerospace objects after re-entry into Earth's atmosphere.



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**Question 9. Are the rules concerning the registration of objects launched into outer space applicable to aerospace objects?**

68. The following Member States submitted replies to question 9: Algeria, Argentina, Benin, Brazil, Chile, Colombia, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Germany, Greece, India, Iraq, Italy, Kazakhstan, Lebanon, Madagascar, Mexico, Morocco, Netherlands, Pakistan, Peru, Philippines, Republic of Korea, Russian Federation, Slovakia, South Africa, Syrian Arab Republic, Turkey and Yemen.

69. Some States were of the view that the rules concerning the registration of objects launched into outer space were defined in the Registration Convention. The view was expressed that those rules should also be applicable to future aerospace objects capable of serving the purpose of astronautics.

70. Some States noted that, in accordance with article II of the Registration Convention, the launching State should register the space object by means of an entry in an appropriate registry, to be maintained by each launching State and that the Secretary-General of the United Nations should be informed of the establishment of such a registry. Some States noted that, as the term "space object" in the Registration Convention included objects launched into orbit around the Earth and in outer space, it was difficult to conclude that the term "space object" in the Convention included an aerospace object. Some States noted that the provisions of the Registration Convention that were applicable to space objects launched into outer space originated from a provision of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (General Assembly resolution 2222 (XXI), annex, the "Outer Space Treaty") that applied to all objects launched into outer space (art. VIII). If an aerospace object was designed to take off as if it were an aircraft, including taking off from a runway and gradually gaining altitude by virtue of air streaming over its wings, it could not be considered as being launched in the ordinary sense of the word and therefore would not be subject to the Registration Convention or to article VIII of the Outer Space Treaty. Accordingly, as the Space Shuttle has to be launched in the ordinary sense of the word, the United States had treated and registered it as a space object.

71. Some of those States expressed concern regarding rapid advances in technology, which could lead to a situation in which the current registration rules would be ineffective.

72. The view was expressed that, while it would currently be premature to amend the provisions of the Registration Convention in order to take account of the special characteristics of aerospace objects, such amendments could be considered in the future, as the design of aerospace objects continued to develop. In addition to the information provided on orbital parameters, information could be required on the planned flight path of the aerospace object through the airspace above States' territories. That State noted that a definite view on that issue could be possible following further investigation of the features distinguishing the operation of aerospace objects. The accepted notion of "launching State" would have to be analysed in the light of any new developments in the launching of aerospace objects. A State that permitted a foreign aerospace object to be launched from its own

airspace would, under current space law, automatically be regarded as one of the launching States, with the concomitant international obligations under the Liability Convention.

73. The view was expressed that, as far as the registration of the object was concerned, the objectives and aims provided for in the existing international convention were not fully applicable to an aerospace object and that it would be advisable to examine the matter thoroughly in order to check the need for registration, while also taking into account the generally short period involved in the “orbiting phase” of an aerospace object.

74. Some States were of the view that an aerospace object capable of serving both purposes (aeronautics and astronautics) should be registered both as an aircraft and a spacecraft, unless a single regime was developed and provided for a different procedure. Such a regime would need to include appropriate provisions on the establishment of special national registries and possibly also a special international register for such aerospace objects. The view was expressed that all aerospace objects should be registered both as “spacecraft” and “aircraft”. That State noted that the registration of space transportation objects assembled in space (for example, manufactured at the Space Station or other similar space platforms), commencing their travel from and to such platforms, never landing on Earth and practically never making an aerial flight, should also be registered and their routes and destinations should be declared to avoid any incidents. Another State noted that it could be preferable to have a single register for aerospace objects.

### **Question 10. What are the differences between the legal regimes of airspace and outer space?**

75. The following Member States submitted replies to question 10: Algeria, Benin, Brazil, Costa Rica, Czech Republic, Ecuador, El Salvador, Fiji, Madagascar, Mexico, Morocco, Netherlands, South Africa, Turkey and Yemen.<sup>1</sup>

76. Some States agreed that the fundamental difference between the two legal regimes was that air law was based on the principle that each State had complete and exclusive sovereignty over the airspace above its territories and territorial waters, whereas space law was based on the principle that outer space, including the Moon and other celestial bodies, was free for exploration and use for peaceful purposes and was not subject to national appropriation by claim of sovereignty, by means of use or occupation or by any other means.

77. In addition, States noted the following differences between the legal regime for airspace, as set out by the Chicago Convention of 1944 and the legal regime for outer space, as set out by the United Nations treaties on outer space:

(a) Space law provided for the use of outer space for the benefit and in the interest of all countries. No provision of that nature existed in air law;

(b) In air law, the right of innocent passage through the airspace of another State did not exist and authorization of the foreign State was necessary, whether in a general form under an international treaty or on a case-by-case basis. In space law, free transit of space objects was permitted. The difference in regulations concerned

matters of national security and also the need to regulate the two spaces in accordance with the use that was made of them;

(c) As regards the registration of objects, different methods and requirements for registration were applicable. In the case of aircraft, the provisions of the Chicago Convention and States' national laws were applicable, whereas space objects were registered in accordance with the provisions of the Registration Convention;

(d) As regards the issue of liability, in air law, liability was established both by international legal provisions and by national provisions and was ascribed to private persons. In space law, the principle of liability of international subjects was applicable, namely, States and international organizations that launched space objects were liable in accordance with the provisions of the Liability Convention;

(e) The concept of "aircraft" was well defined in air law, whereas the concept of "space object" was not and the application of both the rules of air law and space law to one and the same object was not precluded;

(f) Under air law, issues relating to air transit, the international recognition of rights in aircraft, offences and certain other acts committed on board aircraft, the suppression of unlawful seizure of aircraft and the suppression of unlawful acts against the safety of civil aviation were specifically regulated. Such issues were not specifically regulated by space law since there was no practical need for such regulation. Similarly, some issues were only addressed by space law in view of their special nature and characteristics, for example, the allocation of geostationary orbits.

78. The view was expressed that the only link between air law and space law was that both regimes provided for the regulation of a physical space distinct from land and sea. However, as both airspace and outer space had specific uses and characteristics, the norms applicable to each were very different. The difficulties became apparent when the formulation was attempted of a regime for space objects that crossed both airspace and outer space. As no special regime was applicable to aerospace objects, it would be necessary to apply the norms of both air law and space law depending on where the aerospace object was located.

79. The view was expressed that, as outer space was considered of public interest for scientific purposes, it would be appropriate to develop uniform norms that distinguished between airspace and outer space to protect the rights of third States.

80. The view was expressed that, as article 96 (a) of the Chicago Convention defined "air service" as "any scheduled air service performed by aircraft for the public transport of passengers, mail or cargo", that section clearly did not envisage "air service" as including travel into outer space.

81. The following information was provided by South Africa in relation to its Aviation Act No. 74 of 1962 (Aviation Act):

(a) It was noted that section 1 of the Aviation Act defined an "aircraft" as "any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the Earth's surface". Section 2 of the Aviation Act provided that "the provisions of this Act and of the Convention and of the Transit Agreement, shall, except where expressly excluded under this Act or by regulation, apply to all aircraft whilst in or over any part of the Republic or the

territorial waters thereof and to all South African aircraft and personnel wheresoever they may be”;

(b) It was noted that the First Schedule to the Aviation Act was the Chicago Convention, article 1 of which stated: “The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory”. The express reference to “airspace” implicitly excluded the exclusive sovereignty of States over outer space.

### **General answers**

82. The view was expressed that States should seek an appropriate approach in formulating the definition and delimitation of outer space, taking into account the special needs of developing countries. That State took note of the discussion on the questionnaire on possible legal issues with regard to aerospace objects, conducted by the Committee with a view to possibly finding a solution to the question of the definition and delimitation of outer space. However, that State believed that clarification on the following questions would be needed prior to providing a response to the questionnaire:

(a) Would the discussion on the questionnaire aim at defining a special regime for aerospace objects?

(b) Would the discussion on the questionnaire lead to the deletion of the issue of the definition and delimitation of outer space from the agenda of the Committee?

(c) Should the answer to both questions be “yes”, would the special regime solve the problems of the definition and delimitation of outer space?

### *Notes*

<sup>1</sup> This question was introduced by the Working Group on the Definition and Delimitation of Outer Space at the forty-first session of the Legal Subcommittee. Only States that had submitted replies to the questionnaire on aerospace objects after 2002 addressed the question.

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