

OUTER SPACE LAW AND PRIVATE ENTERPRISE IN OUTER SPACE: AN INTERNATIONAL PERSPECTIVE†

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With the coming of age of space research applications and growing awareness at the industrial level of the potential economic benefits to be derived from exploitation of outer space, an interest is shown by private enterprise, national and multinational, in launching space objects to gather those benefits. The present paper investigates both the present practice of private enterprise and the status of space law rules in relation to private enterprise. The final section of the paper is a discussion of future legal regulation of private enterprise in space.

INTRODUCTION

The term "private enterprise in outer space" indicates that, instead of States and/or governmental entities, national and multinational firms are technologically advanced enough to launch their privately built instruments into outer space. One aim of those launchings is to gather from outer space such material as would bring financial or other profits to the firm(s) concerned—in other words, to commercialize space. It must be noted at the outset that even though private enterprise can operate independently (technologically speaking) in outer space, the persons working on the projects are subjects of a sovereign state under the municipal law of that state or states. This issue is a complication which deeply influences the position of both the private enterprise and the states under whose legal rules the private enterprise in question operates.

A further complication involves the controversy over the status of the whole body of space law as a division of international law. One school of thought maintains that the space treaties are not international law since United Nations resolutions create, in themselves, neither legal rights nor legal duties. The space treaties can only, therefore, be considered mere statements of intentions. The other school of thought

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considers U.N. space treaties as part of international law. Without going into the polemic of this problem, in my opinion the U.N. space treaties are not, strictly speaking, part of international law even though the subject matter of the space treaties is international *per se*.

I. BACKGROUND: ACTIVITIES OF THE PRIVATE SECTOR IN SPACE

The American system known as COMSAT (Communications Satellite Corporation)¹ is an early example of commercialization of space techniques. COMSAT was established in 1962 by Communications Satellites Agreements as a global commercial communications satellite system. The private firm COMSAT took over the responsibility of the National Aeronautics and Space Administration (NASA) to exploit the satellites built, launched, and operated by NASA. Another example is the INTELSAT organization.² INTELSAT is a consortium which operates, on the basis of a management agreement with COMSAT, international telecommunication satellites. In Europe, EUTELSAT³ is in the process of being formally established. As a communication satellite corporation, EUTELSAT will be the legal owner of certain satellites once they are positioned in orbit and in working order. The above mentioned examples of the private sector in space activities refer to organizations strongly guided by government regulations.

In contrast to the preceding organizations, EUROSPACE and OTRAG⁴ clearly show a tendency toward less government influence. EUROSPACE is an association of aerospace industrial firms, created as a forum for discussion with industry. EUROSPACE acts as an interlocutor for the European Space Agency (ESA) to make industry's views known.⁵ This does not prevent any independent industry, however, from negotiating with ESA directly. OTRAG, a private enterprise formed by German citizens attempted to establish itself in Zaire and was aimed at building and launching rockets and satellites.

A few examples of the most outstanding recent developments in the trend toward greater participation of private enterprise in the use of outer space include the following:

- (a) The new conservative British Government headed by Prime Minister Thatcher has announced that British aerospace industry, which has been government con-

1. See Communications Satellite Corporation Act of 1962, 47 U.S.C. § 701-44 (1976).
 2. Communications Satellite System, Aug. 20, 1964, 15 U.S.T. 1705, T.I.A.S. No. 5646.
 3. Draft Arrangement Between the European Space Agency and Interim Eutelsat on the European Communications Satellite System for the Fixed Service, E.S.A. Doc. J.C.B.(77)2, 15.5.79.
 4. See NEW AFRICAN, June 1979, at 67-68.
 5. E.S.A. Doc. C(76)40, 4.5.76.

trolled, will return to its former private sector status. British Aerospace⁶ and British Airways⁷ would be among the firms affected by such a change.

- (b) The French ARIANE project⁸ of the European Space Agency⁹ is scheduled to leave that program to enter commercial space enterprise and strengthen competition between Ariane and the United States Space Shuttle. To this end, the Centre Nationale des Études Spatiales (CNES)¹⁰ is in the process of formally negotiating, with European industry partners in the ESA program, the creation of a new organization called ARIANE SPACE. ARIANE SPACE envisages selling satellite space on board the Ariane both to relieve the financial burden and maximize benefits derived from the operation.
- (c) In the United States, the Stevenson Act of January 1979¹¹ puts more emphasis on private sector involvement and calls for immediate flight demonstration of the necessary technology.
- (d) The International Maritime Satellite Organization¹² (INMARSAT), created by the COMSAT Corporation, is a \$200 million world-scale project with 28 percent ownership jointly held by the U.S.S.R. and the United States.¹³

It is possible to infer from the foregoing examples that, although private enterprise applications in space is by no means new, a tendency exists toward commercial, non-governmental control of the field of space research applications. This tendency will not only create financial implications for the states whose municipal law subjects these firms are, but will have a growing influence on the application and extension of rules governing space activities. The next section will highlight some of these influences.

6. See HANSARD, July 23, 1979, col. 29-30.

7. See HANSARD, July 20, 1979, col. 2183-84.

8. Arrangement Between Certain European Governments and the European Space Research Organization Concerning the Execution of the Ariane Launcher Program, Sept. 21, 1973, ESRO/C (73)41, Annex I, revision 4 (entered into force Dec. 28, 1973).

9. The ESA was established in Paris, on May 30, 1975 by the Convention for the Establishment of a European Space Agency. See EUROPEAN SPACE AGENCY ANNUAL REPORT (1975), Annex X.

10. CNES is the French governmental space agency, created by Law No. 61-1382 of Dec. 19, 1961.

11. S. 244, 96th Cong., 2d Sess. (1979).

12. See Convention on the International Maritime Satellite Corporation (INMARSAT), text reprinted in N. JASENTULIYANA & R. LEE, II MANUAL ON SPACE LAW 291-343 (1979).

13. *Id.* at 333.

II. PRESENT STATUS OF LAWS GOVERNING PRIVATE ENTERPRISE IN SPACE

When the formal body of space came into *existence* in 1967 with the Outer Space Treaty, the first commercial firm for exploitation of space research applications (COMSAT) had already existed for five years. Thus, from an early date in the space age, space law reflected the potential for commercializing space. The following shall discuss those rules of space law which represent, albeit in embryonic form, the commercial direction of space research applications.

*A. The Outer Space Treaty*¹⁴

The Preamble to the Outer Space Treaty refers to the "use" of outer space. Should that term also apply to commercial "use"? This question is directly related to Article I of the Space Treaty which reads: "there shall be free access to all areas of celestial bodies." If "use" is to include commercial exploitation, it immediately refers to all areas of celestial bodies. A complication arises, however, with Article II which states: "outer space. . . cannot be subject to national appropriation by claim of. . . use. . . ." It should be noted that under existing asteroid mining plans the problem arises as to how, under the Space Treaty, such mining could take place without violating Article II. The mining will inevitably involve the "use" of the asteroid. This problem may also persist in the many more and larger-scaled projects of the same kind. Private enterprises will rank under the municipal law of a state (or combination of states) which is, as a party to the Treaty, held to bear international responsibility for national activities in space. Moreover, the state is according to Article VII internationally liable for damage by a space object launched into outer space. Article IX indicates that states (as the entity responsible for the activities of private enterprise in outer space) have to avoid causing adverse changes in the Earth's environment. If detected, the detecting state has the obligation to "undertake appropriate international consultations." As regards Article XI, the question can be raised whether private enterprise should follow the intention of this Article, *viz.* to inform the Secretary-General of the United Nations "of the nature, conduct, locations, and results of such activities in outer space". This question is answered in the affirmative by Articles II and IV of the Registration Convention.¹⁵

14. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* Jan. 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 (entered into force with respect to the United States Oct. 10, 1967).

15. Convention on the Registration of Objects Launched into Outer Space, *opened for*

Resuming the discussion of private enterprise and the relevant articles in the Outer Space Treaty, the following inferences may be drawn:

- (1) Outer space, including all areas of celestial bodies, can be used by private enterprise. Outer space, however, cannot be subject to national appropriation by claim of use.
- (2) Private enterprise, as subjects of municipal law, will have to be strictly regulated by their respective states since the states bear international responsibility for national activities in outer space under the Treaty.¹⁶ This burden of state responsibility is made heavier by a duty to register any space object launched from its territory.

Conflicting situations may arise from the foregoing inferences. If several private enterprises head for the same object in outer space, the object belongs, according to the Treaty, to both of them. The question then becomes how one enterprise will prevent the other from taking possession of the object. Additionally, are the profits and other benefits of private enterprise with a national character to be divided?

It seems that under the present rules of space law exploitation is only possible by multinational private enterprises which may set up standards for division of the benefits derived from their activities. Yet, even in this conception, the divided part must be viewed as a national appropriation. The conclusion of this reasoning is that the Outer Space Treaty rules are in need of elaboration on the issue of national appropriation.

Another issue to be resolved concerns the reconciliation of state responsibility with the commercial interests of private enterprises in outer space, *i.e.*, what regulations are needed to prevent states from losing control over the undertakings of private enterprise for which they are responsible. The degree of contact and goodwill between a state and a private enterprise determines whether a launching registry of the state in question will be correct and complete, notwithstanding the fact that it is the state that bears international responsibility for the acts of the private enterprise under its municipal law. From this it may be concluded that either the Outer Space Treaty¹⁷ or the Registration Convention¹⁸ or perhaps both will have to be adapted to the present

signature Jan. 14, 1975, 128 U.S.T. 695, T.I.A.S. No. 8480 (entered into force with respect to the United States Dec. 3, 1968) [hereinafter cited as Convention on Registration].

16. *Id.* art. VI.

17. See note 4 *supra*.

18. See note 5 *supra*.

trend of private enterprise being developed for gathering benefits from launchings into outer space.

B. *The Liability Convention*¹⁹

Pecunia nervus rerum: how is the international responsibility of states for national activities in outer space embodied in the Liability Convention? Additionally and more narrowly, is damage by a space object launched by a private enterprise regulated by the Liability Convention?

Article IV indicates that:

In the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, and of damage thereby being caused to a third State or to its natural or juridical persons, the first two States shall be jointly and severally liable to the third State. . . .²⁰

Application of this rule toward apportionment of the burden of compensation for the damage is based on *fault*. Furthermore, "if the extent of the fault of each of these states cannot be established, the burden of compensation shall be apportioned equally between them."²¹ Article VIII further defines the extent of the responsibility of such damage to include the state's natural or juridical persons; indubitably, a private enterprise launching into outer space will be included in either one or both of these categories of legal persons.²²

There are two methods by which claims may be presented for compensation for damage. The Liability Convention provides, in the case of a private enterprise having caused the damage, that such a claim must be presented to a launching state *through diplomatic channels*. A second possibility in settling claims for such damage is for the parties concerned to establish a Claims Commission at the request of either party.²³ The inference can be drawn that the Liability Convention's scope is wide enough to include undertakings in outer space by private enterprises.²⁴ As is the case with the other areas of outer space law, liability is attached to the launching state.

19. Convention on International Liability for Damage Caused by Space Objects, *done* Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762 (entered into force with respect to the United States Oct. 9, 1973).

20. *Id.* art. IV, para. 1.

21. *Id.* art. IV, para. 2.

22. *Id.* art. VIII.

23. *Id.* art. XIV.

24. *Id.* art. IV.

A problem area concerns claims for damages *not* based on fault. It is quite possible that unforeseen damage may occur which is not the fault of the launching state. Who is to be held responsible for such kind of damage? What is to be the measure of compensation? The Liability Convention does not indicate how to proceed with or resolve such a case. A fortunate circumstance is that governmental or semi-governmental enterprises are developing the practice of insuring their space objects. This form of liability prevention for states has existed in the United States since 1962 by way of COMSAT. In Europe, the ESA has insured all its subsequent space objects since the unfortunate crash of its Orbital Test Satellite 1 (OTS-1) in 1977.

C. *The Registration Convention*²⁵

In the Registration Convention, the term "launching state" is defined as "a state from whose territory or facility a space object is launched."²⁶ This means that the term "state" is used to indicate any launching or space objects covered by the terms of the Registration Convention and, consequently, includes the launching of space objects by private enterprises insofar as the launchings take place from a state's territory (which excludes the high seas). In this context, Article II of the Registration Convention, stating that registration of launched space objects is mandatory for the state parties to the Convention, becomes particularly important. Each state of registry, however, is free to determine the contents of its registry and the conditions under which registration is maintained. Consequently, private enterprises possess a two-tiered relation with the Registration Convention: first, by launching its objects from a given territory and second, by the state's determination of the contents of the registry.

The same relation applies to Article IV, paragraph 3, from which it is clear that the state of registry shall notify the Secretary-General of the United Nations "to the greatest extent feasible and as soon as practicable, of space objects concerning which it has previously transmitted information, and which have been but no longer are in earth orbit." This would probably apply to space objects launched by private enterprise. Cooperation of states other than the launching state in case of damage by space objects is presupposed on the basis of Article VI of the Registration Convention. Any state suffering from or expecting damage by a space object has a legal right to assistance, *e.g.*, from states possessing space monitoring and tracking facilities. In summary,

25. See note 5 *supra*.

26. Convention on Registration, *supra* note 5, art. Ia(ii).

all launchings have to be registered under the Registration Convention, even those made by private enterprise.

D. Practical Problem Areas

Having theoretically investigated the present legal status of private enterprises in space, the practical side of the matter should be evaluated. The first issue concerns the kind of projects in which private enterprise will engage in the pursuit of profit. In view of modern technological achievements, it can be expected that most projects initially will be remote sensing satellites. Secondly, the United States, Soviet Union, and Europe will actively engage in space shuttle and space laboratory operations. Third, the moon will probably be important either as a home base for future economic exploitation of and expeditions into our solar system, or as the subject of exploitation by mining. Fourth, direct broadcasting satellites similar to television transmission satellites in many states will become significant in commercial utilization of space. However, direct broadcasting satellites are unique since the International Telecommunication Union (ITU) has allocated frequencies as well as prescribed coordination procedures and technical standards pursuant to the International Telecommunication Convention of 1973.²⁷ It should be noted here that although the ITU is a specialized agency of the United Nations²⁸ Annex 3, Article VII, of the ITU Convention authorizes the ITU to request the advisory opinion of the International Court of Justice upon legal questions within the scope of its competence. Broadcasting in most states is a well-regulated and a strictly governmental affair, and problems are not soon expected to arise in this field, especially since direct economic profit is not foreseen in the near future. A fifth category of a different order is the geostationary orbit and the objects placed in this equatorial orbit.

The five categories mentioned above have two common characteristics:

- (1) The activities or objects will occur or be placed in what is commonly called outer space; and
- (2) There is no delimitation to outer space; *i.e.*, a legal regime exists for outer space activities without anybody knowing (legally speaking) where outer space begins. This places the legal framework of outer space in a rather awkward position. A recent United Nations document, however, indicates some progress in this matter

27. *Done* Oct. 25, 1973, 28 U.S.T. 2495, T.I.A.S. No. 8572 (entered into force with respect to the United States Apr. 7, 1976).

28. *Id.* Annex III, art. 1.

since the U.S.S.R. has submitted a proposal (which hopefully will be set forth in a resolution to the United Nations General Assembly) to establish a conventional boundary between outer space and air space not higher than 100 to 110 Kilometers above sea level.²⁹

It goes without saying that the establishment of private enterprise for the exploitation of outer space will greatly enlarge the uncertainties as to what is to be permitted in outer space in spite of already existing rules of space law. The claim on parts of the geostationary orbit by eight equatorial countries, as presented in the "Bogota Declaration" of December 4, 1976,³⁰ is already an indication of the kind of problems that may arise with the establishment of less theoretical and more directly profit-motivated private enterprise in outer space. Additionally, the fact that it has taken over eight years for the United Nations to draft a set of rules for remote sensing satellites (still not complete as of this writing) may indicate that such satellites are, in themselves, a very profitable enterprise. Although space shuttles and laboratories are to be launched under governmental authority, in the near future the world most likely will witness private crews manning and operating both shuttles and laboratories. The European Ariane Space (*in statu nascendi*) is one example. Moreover, when space shuttles and laboratories are functioning, the obvious next step is the establishment of space stations and space colonies in outer space or on one or more of the celestial bodies. It is immediately necessary for space law, if it is to serve as a system of guidelines for the expansion of private enterprise in space, to embody the rules for those who "use" outer space in a private or semi-private capacity.

III. QUESTIONS AND SUGGESTIONS: FUTURE LEGAL RULES IN RESPECT TO PRIVATE ENTERPRISE IN OUTER SPACE

Several paramount questions and their tentative answers follow:

(A) How is "use" of outer space by private enterprises to be defined? Much has been said on this item since the beginning of the space era. The contents of the term "use", however, changes according to the technological developments in space research applications. The term "use" is strongly associated at present with discussions on the definition of natural resources, mainly as a result of data gathered by remote sensing satellites about the earth. The problem of

29. U.N. Doc. A/AC.105/C.2/L.121 (1979).

30. Declaration of the First Meeting of Equatorial Countries, I.T.U. Doc. WARC-BS (1977) 81-E, reprinted in N. JASENTULIYANA & R. LEE, II MANUAL ON SPACE LAW 383-87 (1979).

what is to be understood by "use" is, therefore, not different for private enterprise and states and could be taken into account in the planned set of principles not only for remote sensing satellites, but also for direct broadcasting satellites and the moon.

(B) How are the relations between states and private enterprise to be settled legally in light of existing space law treaties? Space law speaks, apart from the places where non-governmental entities are mentioned, consistently of sovereign states. Although the relations between states and private enterprise are (generally speaking) a matter of municipal law, launchings of objects by private enterprise (whether national or multinational) into outer space are bound by the space law rule that any state shall bear international responsibility for the space activities of its national private enterprise. The entire body of space law uncompromisingly speaks of state responsibility, meaning that private enterprise must seek counsel with their respective governments before starting a project involving space activities. Therefore, the state(s) concerned must decide whether to accept full responsibility for the space acts of their private enterprise. Sovereign states should, in concurrence with the present body of space law, continue to work closely with each other and private enterprise seeking profit from outer space.

As outlined previously, the present body of space law is broad enough to encompass most activities of private enterprises in outer space. The present negotiations to draft principles for remote sensing satellites, direct broadcasting satellites, and the moon might, with slight modification, be adapted to the activities planned by private enterprise in outer space. Moreover, private enterprises themselves might find it necessary to insure their space objects against failure, thereby relieving the related state from responsibility and transferring this responsibility, at least partially, to the insurance companies.

(C) What attitude should states adopt toward their international liability where a multinational private enterprise has not agreed with a state on the disposition of profits, *e.g.*, when a multinational private enterprise appears to be targeted for appropriation? The implicit question here is whether states have decisive power to apply municipal law unilaterally, perhaps without the consent of the private enterprise. Given that the private enterprise may be supposed to have the economic means to back their pursuits, a possible solution might be that the states concerned maintain close contact with each other and their respective enterprises to control pursuit of national appropriation by private enterprise.

(D) What rules have to be formulated with regard to damage not based on fault, caused by a space object which has been launched by either a national or multinational private enterprise? An amendment of the Liability Convention³¹ seems necessary to accommodate damages not based on fault. At the time the Liability Convention entered into force, and even before, some officials commented that for cases of damage based on fault the compensation system under the Liability Convention was unsatisfactory. Article XXV of the Convention provides that any state party to the Convention may propose amendments. Amendments may be proposed every five years according to Article XXVI. Since the Liability Convention entered into force on March 29, 1972, it is theoretically possible to review and propose amendments in 1983 concerning both the compensation system under the present Convention for damage based on fault and for damage not based on fault (with a special view towards intervening developments in private space activities and potential). This would also serve as an opportunity to review the Liability Convention on the points criticized in 1972, that (a) the Convention was not sufficiently victim-oriented; (b) the Convention did not mention a maximum amount to be paid to the victim; and (c) due to differences among the several types of law in the world, it is unlikely that in case of damages awarded under the Liability Convention the victim(s) will be fully compensated. With the increase of launched space objects and the advent of private space enterprises, these criticisms receive new impetus. It would also be worthwhile, when reviewing the Liability Convention, to take into account the risks of increased activities in space borne by the inhabitants of the earth.

(E) When private enterprise launch space objects into outer space, how will registration as required by the Registration Convention³² be realized? In order to keep the Registration Convention up to date with recent developments (including private enterprise in outer space), the Registration Convention could be amended simply to include the registration by states of space objects launched by private enterprise. In attempting to invest primary international responsibility with the states, it would be advisable to leave the registry of launchings of space objects with the states. Article II of the Registration Convention, may be amended by adding a new paragraph requiring private enterprise to register their intended launchings with their respective governments.

The foregoing suggested answers are just the beginning of the

31. See note 5 *supra*.

32. *Id.*

needed inquiry into these vital issues. If they merely serve as an outline for further elaborations, their purpose is fulfilled.

IV. CONCLUSION

For some years now, the space shuttles and space laboratories in various developmental stages throughout the world have opened the eyes of private industry to the prospects of outer space as potential source of great economic benefits. It may be concluded that space law, formulated in the mid-1960s, already takes into account the possibility of exploitation of outer space by private enterprise. A strong tendency exists in substantive space law to put primary responsibility for space activities in the hands of states, but it can be and has been argued herein that space law is flexible enough to allow private exploitation of outer space. Only slight additions and modifications seem necessary to make the body of space law fully adapted to future developments of private enterprise in outer space.