

can afford to do so. Therefore, a private space activity can be interfered with or damaged by a less forceful and radical intervention. It is altogether possible that private activities would be the initial targets of hostile actions in space.

Many private sector space activities could be seen as provocative. For example, the direct broadcast of television to territories where the governments object could be seen to incite a response directed against the activity itself. Remote sensing, particularly by systems the products of which are of fine resolution and distributed without prior consent of the sensed state, could also be viewed as provocative.

Finally, with increasing space activity comes the threat of unintentional interference. The Liability Convention<sup>15</sup> provides for compensation for damages caused by space objects. For damages caused in the space environment, however, liability depends upon the demonstration of "fault." The concept of fault is difficult because its limits are not well defined juridically. In the present context, for example, it is not clear whether fault is coincident with causation or whether it excludes negligence.

### *5. Conclusions*

It appears that private sector activities and interests in space a) are in jeopardy from hostile actions between governments, b) may provoke such actions from governments or private entities, c) are important elements in the economic health and national security of some countries, and d) are not adequately provided for in existing space law.

With increasing private investment in space, particularly from the U.S. private sector, it becomes very important for private sector concerns to be brought to bear on governmental deliberations on law and regulation in space. There exist mechanisms for bringing industrial representatives onto delegations, to backstopping teams and into the development of positions. There are also opportunities for private sector views to be heard in connection with proposed legislation or the ratification of agreements. Nevertheless, these are not now used sufficiently to ensure that private sector concerns play their appropriate role. In this matter, it would seem that both the Government and the private sector have responsibilities.

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<sup>15</sup>Convention on International Liability for Damage Caused by Space Objects, March 29, 1972, 24 U.S.T. 2389; T.I.A.S. 7762 effective Oct. 9, 1973.

# LAW AND SECURITY IN OUTER SPACE FROM THE VIEWPOINT OF PRIVATE INDUSTRY +

*By Roger K. Hoover\**

## I. INTRODUCTION

Much has been written about the effect of the use of outer space on national and international security. Also, there is much written on the principle of reserving outer space for peaceful uses only and the effect of this principle on self-defense and, in turn, on the ability of nations to maintain their security. These are important and complex issues to be addressed and, hopefully, resolved within the context of international law and space law. In this paper I would like to address the issues of law and security in outer space, not from the point of view of the world, of national alliances, or of nations, but from the point of view of private industry. I will review what "security" and some of the elements thereof are to private industry, how these relate to private industry engaged in space activities, the extent to which they are covered by existing space law, the effect of such coverage on private industry and some areas which still need to be addressed by space law to provide security for private industry in outer space.

## II. PRIVATE INDUSTRY SECURITY

What does security mean to private industry? Webster defines "security" as "the quality or state of being secure; freedom from danger; safety; freedom from fear or anxiety; freedom from want or deprivation." This definition fits nicely into the concept of security for private industry. The desires of private industry for security translate into a desire for freedom from danger, fear, anxiety and deprivation relating to its right to conduct business, its equipment, its employees, its technology, and its profits.

Once private industry has taken necessary actions internally, it relies on the legal regime in which it is operating for additional assurances of security. The legal regime to support the security of private industry must provide for the authority of private industry to operate in the geographical area and in the business area in which it is interested. It should provide for protection against interference by others in the private industry's legitimate business and protection from harm or damage by others to the industry's technology, equipment, employees and general right to operate. With regard to non-space activities, from the very nature of the existence of private industry to varying degrees around the world, we can conclude that the legal regime as encompassed in local, national, and international law provides to private industry a sufficient degree of security to permit it to continue and even to thrive.

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+ The views expressed in this article are those of the author and not necessarily those of Lockheed Missiles and Space Co., Inc.

### III. SECURITY FOR PRIVATE INDUSTRY IN SPACE ACTIVITIES

Any private industry which is considering activities in outer space will seek in those activities the same degree of security which it enjoys in its earthbound activities. The degree to which the elements of security are provided for private industrial activities in outer space will have an important effect on the degree to which private industry will participate in outer space activities. Such security will be dependent upon the legal regime which governs outer space activities. Thus, to analyze the question of security of private industry in outer space we need to review the existing legal status of outer space. In doing this, we will look principally at the four major existing space treaties, which I will refer to as the "Outer Space Treaty,"<sup>1</sup> the "Rescue and Return Treaty,"<sup>2</sup> the "Liability Treaty"<sup>3</sup> and the "Registration Treaty."<sup>4</sup>

### IV. EFFECT OF SPACE LAW ON SECURITY OF PRIVATE INDUSTRY ACTIVITIES IN OUTER SPACE

#### A. *Right to Participate*

The first issue of "security" for private industry involves the question of whether or not it has a right to participate in a particular area of business. To the extent that the right to participate is restricted or doubtful, private industry will feel insecure about its participation.

Does private industry have a right to participate in outer space activities? I believe that under existing space law the answer in general is "yes".

Early in the negotiations of the Outer Space Treaty, it was recommended by some nations that participation in outer space activities should be limited to nations or to the "states". Private industry, it was suggested, should not be permitted to participate. Those suggestions were not adopted and the Outer Space Treaty does not restrict participation to governments.<sup>5</sup> In fact, Articles VI and IX of that treaty make specific

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<sup>1</sup>Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (hereinafter "Outer Space Treaty"), Jan. 27, 1967 [1967] 18 U.S.T. 2410, T.I.A.S. 6347, 610 U.N.T.S. 205 (effective Oct. 10, 1967).

<sup>2</sup>Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched Into Outer Space (hereinafter "Rescue and Return Agreement"), April 22, 1968 [1969] 19 U.S.T. 7570, T.I.A.S. 6599, 672 U.N.T.S. 119 (effective Dec. 3, 1968).

<sup>3</sup>Convention on International Liability for Damage Caused by Space Objects (hereinafter "Liability Convention"), March 29, 1972 [1973] 24 U.S.T. 2389, T.I.A.S. 7762 (effective Oct. 9, 1973).

<sup>4</sup>Convention on Registration of Objects Launched Into Outer Space (hereinafter "Registration Convention"), Jan. 14, 1975 [1976], T.I.A.S. 8480 (effective Sept. 15, 1976).

<sup>5</sup>"Outer Space Treaty," *supra* note 1, art. VI.

references to "non-governmental entities"<sup>6</sup> and to the activities of a state "or its nationals in outer space."<sup>7</sup> Article VI of the Outer Space Treaty does require that "activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty."<sup>8</sup>

In addition, Article VII of the Outer Space Treaty makes a State Party "from whose territory or facility an object is launched" liable for damage by such object.<sup>9</sup> This is reinforced by the Registration Treaty which requires all space objects to be registered to a nation<sup>10</sup> and, thus, would require any private industry space objects to be registered to a nation. The Liability Treaty further reinforces the liability of a "launching state"<sup>11</sup> for damage caused by a space object of the launching state.<sup>12</sup>

It can reasonably be expected that any nation, being so subjected to liability, will control and restrict the activities of private industry so as not only to reduce the risk of damage which may be caused by a launch involving private industry of a space object from the nation's territory, but also to pass on to such private industry the liability for such damages. In such a situation, the level of security enjoyed by the private industry will be greatly influenced by the technical risks involved in the contemplated space activity as well as the ability of the private industry to cover such risks by its own financial responsibility, by insurance, or through indemnification from some other party or a combination thereof.

States Parties to this Agreement shall bear international responsibility for national activities on the moon whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are in conformity with the provisions set forth in the present Agreement. States Parties shall insure that non-governmental entities under their jurisdiction shall engage in activities on the moon only under the authority and continuing supervision of the appropriate State Party.<sup>14</sup>

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<sup>6</sup>*Id.*

<sup>7</sup>*Id.*, art. IX.

<sup>8</sup>*Id.*, art. VI.

<sup>9</sup>*Id.*, art. VII.

<sup>10</sup>"Registration Convention," *supra* note 4, art. II, para. 1.

<sup>11</sup>The term "launching state" was defined by the Convention as:

- (1) "A state which launches or procures the launching of a space object" and
- (2) "A state from whose territory or facility a space object is launched."

<sup>12</sup>"Liability Convention," *supra* note 3, art. 1, §c.

<sup>13</sup>*Id.*, *supra* note 3, art. II.

<sup>14</sup>Draft Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (hereinafter "Moon Treaty"), U.N. GAOR, 34th Sess., Supp. H. No. 20 (Doc. A/34/20).

<sup>15</sup>*Id.*, art. XIV, para. 1.

Thus, private industry is permitted to participate in outer space activities but only as authorized and supervised by a nation and as controlled or regulated by the nation with regard to the risk of liability for damages faced by the nation as a result of the private industry involvement.

#### *B. Effect of National Claims of Ownership to Outer Space*

Private industry must determine where in outer space to conduct its activities. This decision may very well be affected by claims of ownership to outer space by individual nations. For example, a private industry intending to conduct outer space activities in the geostationary orbit might not feel very secure about doing so if it were aware of the claims by equatorial countries of ownership of that orbit. Private industry, being aware that in order to get to and remain in an outer space position its space object must pass through or remain in outer space over the area which is within the borders of another nation or nations, might likewise feel insecure in knowing that various nations from time-to-time have claimed ownership and sovereignty over the outer space above their sovereign territories. The degree of security or insecurity would be affected by the extent to which space law supports or rejects such claims.

Claims of ownership of outer space have generally not been recognized by international or space law. The Outer Space Treaty provides that "[o]uter space, including the Moon and other celestial bodies, shall be free for exploration and use by all states without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies."<sup>15</sup> Similarly, the proposed Moon Treaty would provide that "[t]he Moon is not subject to national appropriation by any claim of sovereignty, by means of use of occupation, or by any other means."<sup>16</sup> Paragraph 3, of Article XI would provide that "[n]either the surface nor the subsurface of the Moon, nor any part thereof or natural resources in place, shall become property of any state, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person."<sup>17</sup>

Thus, under the Outer Space Treaty and under the proposed Moon Treaty, private industry need not feel a great deal of insecurity arising out of national claims of ownership to or sovereignty over areas of outer space or celestial bodies.

#### *C. Harm and Damage to Persons or Property in Transit and in Outer Space*

Private industry would be concerned about the security of its property and employees (if any) while making the commute to and while stationed at an outer space location.

Because of the advanced technological state of outer space activities, there can always be technical risks which affect the security of property and persons in outer space

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<sup>15</sup>"Outer Space Treaty," *supra* note 1, art. 1.

<sup>16</sup>"Moon Treaty," *supra* note 13, art. XI, para. 2.

<sup>17</sup>*Id.*, para. 3.

activity. These would have to be addressed internally in private industry through technical safety and reliability measures. Further, national or international law may impose safety standards or restrictions on the private industrial activities which would have to be met.

If harm or damage arises from collision with a traceable space object, private industry is afforded some level of security by the existing treaties. The Rescue and Return Treaty would require other nations to provide assistance to a damaged spacecraft<sup>18</sup> and its personnel<sup>19</sup> and to return a downed spacecraft<sup>20</sup> and its personnel.<sup>21</sup> The Registration Treaty would hopefully permit identification of the responsible nation.<sup>22</sup> The Liability Treaty would provide a method of obtaining recovery for such damage.<sup>23</sup> However, the ability of the private industry to recover damages is dependent upon the ability of nations to resolve the claims or disputes between them and, failing such resolution, their willingness to accept the determination of a claim commission under the Liability Treaty.

To the extent that damage is caused not by a space object, but by another person, the ability of the private industry to obtain redress is unclear. The Outer Space Treaty forbids interference, but does not provide a clear remedy if such interference does occur. The Liability Treaty provides for redress of damages caused by a space object,<sup>24</sup> but does not clearly provide such redress for damages caused by persons to the property or employees of another in outer space. Private industry would have to rely on the ability of nations to consult and resolve the issues or, if available, on the application of some international law. In this area, private industry is not provided a clear degree of security.

There is a security, or safety, risk which needs to be addressed by space law. This is the risk of collision created by abandoned orbiting manmade space objects which are no longer controlled or controllable. As space activities increase, more space objects are launched, more are abandoned in space, and the danger of collision with abandoned objects increases. Although the Registration Treaty requires that all space objects be registered to a nation<sup>25</sup> and the Liability Treaty places liability for damages caused by space objects on the launching nation,<sup>26</sup> it may be difficult, or even impossible, to determine the nation responsible for a specific abandoned, manmade space object, or portion thereof, after many years in orbit. The lack of control over this area increases the

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<sup>18</sup>"Rescue and Return Agreement," *supra* note 2, art. V, para. 2.

<sup>19</sup>*Id.*, art. II, III.

<sup>20</sup>*Id.*, art. V, para. 3.

<sup>21</sup>*Id.*, art. IV.

<sup>22</sup>*See*, "Registration Convention," *supra* note 4, art. VI.

<sup>23</sup>"Liability Convention," *supra* note 3, art. VIII through XXIII.

<sup>24</sup>"Liability Convention," *supra* note 3, art. II.

<sup>25</sup>"Registration Convention," *supra* note 4, art. II, para. 1.

<sup>26</sup>"Liability Convention," *supra* note 3, art. II.