

## GLOBALISATION AND PRIVATISATION OF THE SPACE LAUNCH SECTOR AND ITS IMPLICATIONS ON THE RESCUE AGREEMENT

Ricky J. Lee\*

### Introduction

Since the beginning of the space age nearly sixty years ago, one of the major concerns of the spacefaring States has been the status in international law of astronauts in distress and returned space objects as well as the legal obligations that ought to be imposed on States as to their treatment and return.

It was in this context that, forty years ago in 1968, the General Assembly of the United Nations adopted the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (the **Rescue Agreement**).<sup>1</sup> Since the adoption of the Rescue Agreement, 91 States have ratified it and a further 23 States have signed but not yet ratified it, making it one of the more widely accepted of the five existing United Nations space treaties.<sup>2</sup>

Forty years later, the foundations on which the Rescue Agreement was built are no longer secure. The private space industry, particularly multinational firms, have been involved in the provision of commercial launch services for some time and are now forming a substantial segment of the commercial launch services market. Further, the Ansari X Prize, the advent of private manned space flight and the establishment of commercial space tourism ventures are eroding away what is left of the governmental monopoly on space activities.

This paper sketches the operative provisions of the 1968 Rescue Agreement and analyses the problems posed by the globalisation and privatisation of the launch sector and concludes by making some observations and suggestions for the adoption and reform of the relevant legal principles to adapt better to space activities in the next forty years.

### Origins of the Rescue Agreement

As early as 1959, the report of the *ad hoc* Committee on the Peaceful Uses of Outer Space discussed the need for legal principles concerning astronauts in distress and returned space objects. Paragraph 21 of the report stated that:

Problems of re-entry and landing of space vehicles will exist both with respect to unmanned space vehicles and later with respect to manned vehicles of exploration. Recognising that landing may occur through accident, mistake or distress, members of the committee called attention to the desirability of the conclusion of multilateral agreements concerning re-entry and landing. Among the subjects that might be covered by such agreements would be the return to the launching state of the vehicle itself and – in the case of a manned vehicle – provision for the speedy return of personnel.

Further and in particular, paragraph 74 of the report stated that:

Where space vehicles re-enter the Earth's atmosphere either through design or misadventure and any equipment or instrumentation is recovered by countries other than the launching country, arrangements are needed for restoring such instrumentation and equipment to the launching country.

In 1963, the General Assembly of the United Nations adopted the legal principle that astronauts are to be regarded as envoys of all mankind and all States are thus obliged to render all reasonable assistance to astronauts in distress and are to return them to their State of national origin.<sup>3</sup> Specifically, Paragraph 9 of the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space (the **Principles Declaration**) stated that:

States shall regard astronauts as envoys of mankind in outer space, and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of a foreign State or on the high seas. Astronauts who make such a landing shall be safely and promptly returned to the State of registry of their space vehicle.<sup>4</sup>

This principle was later entrenched by the Legal Sub-Committee of the United Nations Committee on the Peaceful Uses of Outer Space, by then a permanent body, in the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies (the **Outer Space Treaty**).<sup>5</sup> Article V of the Outer Space Treaty already requires that:

States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all

possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.

In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.

...

At the same time, there was agreement among the members of the Legal Sub-Committee that the legal principles concerning the rescue and return of astronauts and space objects should be contained in an international treaty, separate to the Outer Space Treaty. In 1964, the Legal Sub-Committee created a working group to consider the two draft instruments on this subject as submitted by the Soviet Union<sup>6</sup> and the United States.<sup>7</sup> Several other States also submitted amendments to the two existing drafts and a new proposal, based on those discussions and amendments, was later jointly submitted by Australia and Canada.<sup>8</sup> With two further drafts with some differences were submitted by Italy,<sup>9</sup> and Argentina,<sup>10</sup> the Secretariat of the United Nations circulated a consolidated working draft.<sup>11</sup> After debates and several revisions, the text was submitted to the Committee on the Peaceful Uses of Outer Space and, following its approval, the General Assembly adopted the Rescue Agreement on 19 December 1967.<sup>12</sup>

### **Important Provisions of the Rescue Agreement**

The 1968 Rescue Agreement served to broaden the obligations of States in relation to the rescue, recovery and return of astronauts and to extend some of these

obligations to the recovery and return of space objects. These obligations vary in specificity and scope but one clearly formulated and adopted in an environment in which the governmental agencies or military establishments of States are the exclusive actors in manned space exploration and launch activities.

The Rescue Agreement expands on these requirements and provides that:

- (1) the Member States are required to notify the launching authority and the United Nations or, if the launching authority cannot be identified, announce publicly of any information or discovery of any accident, distress or emergency landing suffered by astronauts onboard a spacecraft;<sup>13</sup>
- (2) if astronauts onboard a spacecraft have made an emergency landing within the territory of a State, that State is required to take all possible steps to rescue them, provide all necessary assistance and to return them safely and promptly to the launching authority;<sup>14</sup> and
- (3) if astronauts onboard a spacecraft have alighted in the high seas, all States in a position to do so must extend assistance in search and rescue operations and, if they are discovered, to return them promptly to the launching authority.<sup>15</sup>

The term “launching authority” refers to the State that was responsible for the launch. In the case of an international organisation, “launching authority” refers to that organisation provided that it has accepted the rights and obligations of the Rescue Agreement and a majority of its members are party to the Outer Space Treaty.<sup>16</sup>

In addition to astronauts, the Rescue Agreement also imposes specific obligations

on States in relation to returned foreign space objects in that:

- (1) the Member States are required to notify the launching authority and the Secretary-General of the United Nations of any information or discovery of any returned space object or its component parts;<sup>17</sup>
- (2) if a space object or one of its component parts has returned to the territory of a State, that State is required to recover the object or component part, if requested, and to return it to the launching authority;<sup>18</sup>
- (3) if a space object or one of its component parts has been found by a State beyond the territorial sovereignty of the launching authority, that State is required to recover it and to return it to the launching authority;<sup>19</sup> and
- (4) if the returned space object or one of its component parts is of a hazardous or deleterious nature, the State must notify the launching authority and to immediately take effective steps to eliminate possible dangers of harm.<sup>20</sup>

The only reference to the reimbursement of costs by the launching authority is found in Article 5(5) of the Rescue Agreement, which relates only to expenses incurred in recovering and returning the space object or its component parts. There is no specific provision in the Rescue Agreement that provides for the reimbursement of costs incurred in the rescue and repatriation of astronauts or the costs of any cleanup of hazardous materials or risks. It appears from the language of the provision that the reimbursement of the necessary costs is to be dealt with separate to the liability for damage caused by the space object.<sup>21</sup>

Similar to the provisions of the Outer Space Treaty, some commentators have asserted that some, if not all, of the provisions of the Rescue Agreement have crystallised into customary international law.<sup>22</sup> However, this view may be difficult to sustain considering the absence of a substantial amount of state practice relating to these principles.

## Modern Controversies

### *Defining a Space Object*

Article 5 of the Rescue Agreement refers to the return of a “space object or its component parts”. Bin Cheng had suggested that “space objects” covers “any object launched by humans into outer space, as well as any component part thereof, together with its launch vehicle and parts thereof” and so objects launched into Earth orbit and beyond are *ipso facto* regarded as space objects.<sup>23</sup> A similar legal definition for “space object” has been proposed by Vladimir Kopal.<sup>24</sup>

In the modern context, this has particular relevance in the case of a space object launched by a rocket deployed from an aircraft in airspace. The definition as suggested by Cheng and Kopal would exclude the aircraft from the definition of “space object”. However, Karl-Heinz Böckstiegel suggested that the aircraft may be considered the first stage of the launch vehicle.<sup>25</sup> Accordingly, the definition of “space object” under the Rescue Agreement would include the aircraft, which is respectfully submitted to be somewhat contrary to logic or practice.

The next issue is the definition of the “component parts” of a space object within the context of the Rescue Agreement. It is clear that pieces, fragments and other substances of an object would generally be regarded as “parts” of that object rather than its “component parts”. As the term “component parts” can be considered to have

a clear meaning, the argument may therefore be forcefully made that the drafters of the Rescue Agreement intended for such a distinction to be maintained in the case of the “component parts” vis-à-vis the “parts” of a space object. However, as Stephen Gorove suggested, such a technical distinction does not appear to be maintained by state practice and, in any event, there does not appear to be a sound policy justification for such a technical distinction.<sup>26</sup>

One practical consequence of not maintaining such a distinction between “component parts” and “parts” is that the obligations under Article 5 of the Rescue Agreement may be triggered even if the relevant part of the space object in question may amount to no more than fragments or debris. It is for this reason that William Wirin suggested that the use of the term “component parts” was to specifically exclude small pieces and fragments that are not capable of surviving a re-entry into the atmosphere of the Earth.<sup>27</sup> Accordingly, they would not be the subject of the Rescue Agreement, though this would produce the effect that anything that survived re-entry from outer space may be considered subject to the provisions of the Rescue Agreement. On the other hand, Cheng argued that “fragments of a space object that fall on the Earth are ... given the same status as the whole object ... [and] nothing suggests otherwise, or that shattered fuel tanks or flakes of paint from space objects in outer space should be treated any differently”.<sup>28</sup> However, it is respectfully submitted that the drafters of the Rescue Agreement, in referring to the “component parts” of a space object, clearly intended to suggest an interpretation other than that proposed by Cheng, for then there would be no substantive difference between the meanings of “parts” and “component parts”.

## *Returned to Earth*

Article 5 of the Rescue Agreement applies to space objects or their component parts that have “returned to Earth”. This provision applies only to space objects, as the other articles of the Rescue Agreement relating to the personnel of spacecrafts refer to them “landing” or “alighting”. The fact that Article 5 refers to “Earth” rather than the “surface of the Earth” raises the question of whether the space object or its component parts must have reached outer space before it returned to Earth before the obligations arising from the Rescue Agreement can apply.

This technicality gives rise to certain practical difficulties. If the space object in question is a component part of the launch vehicle that was never intended to reach outer space, such as the first stage of a multi-stage expendable launch vehicle, then it is questionable whether the provisions of the Rescue Agreement can be invoked by the relevant launching authority. Similarly, in the event of a launch failure, it is also debatable whether the launching authority can invoke the Rescue Agreement for the return of the space object and the launch vehicle that never left the atmosphere. In the absence of a generally agreed delimitation between airspace and outer space, such a requirement may pose practical difficulties for launching authorities seeking to invoke the Rescue Agreement.

Article 5(3) of the Rescue Agreement would tend to suggest that the space object or component part in question must have reached outer space for the Rescue Agreement to be invoked. This is because Article 5(3) specifically refers to “objects launched into outer space”. This would have the effect that, in the event of either a launch failure or the component parts of a launch vehicle that are not intended to reach outer space, the provisions of the Rescue Agreement relating

to the recovery and return of space objects would not apply.

## **Implications of Globalisation and Privatisation of the Modern Commercial Space Industry**

### *Launching Authority*

One of the principal terms used in the Rescue Agreement is the concept of the “launching authority”, a concept that is somewhat unique to the Rescue Agreement. Article V of the Outer Space Treaty refers to the return of astronauts to the State of registry of their space vehicle. In the Rescue Agreement, however, Article 6 defines the “launching authority” refers to the State responsible for launching the relevant space vehicle.

The “State of registry” for the “space vehicle” as referred to in Article V of the Outer Space Treaty presents a difficulty where the space vehicle is not registered voluntarily or under the mandatory provisions of the 1976 Convention on the Registration of Objects Launched into Outer Space (the **Registration Convention**).<sup>29</sup> Difficulty also arises where the astronauts have returned to the surface of the Earth as a result of a launch failure so that the space vehicle may not have been registered but would have been registered had the launch operation been successful. In such cases, it may be suggested that the obligations imposed under Article V of the Outer Space Treaty would not apply.

It may be suggested that, in the case of the Rescue Agreement, the use of the term “launching authority” as the “State responsible for the launching” of the space object or the personnel of the spacecraft would overcome this problem. This would have been sufficient for the intended purposes of the Rescue Agreement where only one single State is involved in the space activity that launched the spacecraft or object into

outer space, as it had been the case for most of the past forty years. However, in the modern context of a globalised space industry, there may be more than one State involved in any particular launch and may thus be considered “launching authorities” for the purposes of the Rescue Agreement, giving rise to confusion when its provisions are applied.

In the context of the Convention on the Liability for Damage Caused by Space Objects (the **Liability Convention**) and the Registration Convention, it is possible for there to be more than one “launching State”.<sup>30</sup> Indeed, both treaties specifically provide for such a possibility.<sup>31</sup> In the context of the Rescue Agreement, however, significant difficulties may arise where there is more than one State that may be regarded as the launching authority. This is because the rights and obligations under the Rescue Agreement may not be practically exercised by or imposed on more than one State. While this may not be of significant impact in relation to the personnel of a spacecraft as reference can be made to their State of nationality, the same cannot be said for space objects or their component parts. It is possible that, where the satellite of one State was launched by the launch vehicle of another State, the State whose satellite is being launched may seek to assert its rights as a launching authority and seek the recovery of the launch vehicle to obtain technology that otherwise would not be available to them. The reverse position can also occur, where the State whose launch vehicle it was may seek the recovery of the satellite with a view to attaining technological advancements that are otherwise unavailable to them.

Further, where there are more than one possible launching authorities and one is seeking the recovery of a returned space object, it may be open to the State that has recovered the space object to refuse the claim and instead proceed to return the space object

to the other launching authority. This would have particular implications where the launch involved sensitive technology owned by one State that is sought by the other State.

In the context of a global and multinational space industry, such possibilities are not too remote or inconceivable. There are increasing instances of commercial launch services being provided by an industrialised State to a developing State (such as the launch of Indian satellites by Arianespace) and also vice versa (such as the launch of European and U.S. satellites by China). Without a resolution of the issue of defining a “launching authority”, there is potential for future international disputes in the application of the provisions of the Rescue Agreement.

### *Flags of Convenience*

One of the major implications arising from the globalisation of the space industry is the advent of possibility of utilising flags of convenience for the purposes of minimising its licensing and regulatory burden. While this is not a significant issue where there is licensing of private spacecraft in compliance with the authorisation and continuing supervision requirements of Article VI of the Outer Space Treaty, this would not be the case if the launch vehicle is not subject to licensing in the State that may be considered the launching authority.

In such a case, the State that is the launching authority may not have knowledge that its spacecraft personnel has landed or alighted within the jurisdiction of another State to invoke its rights under the Rescue Agreement. Further, it may also seek to refuse requests by the private concern to invoke the terms of the Rescue Agreement on its behalf as it may be seen to have no vested interest in expending its resources and efforts to do so.

## *Personnel of a Spacecraft*

One of the central terms used in Paragraph 9 of the Principles Declaration and Article V of the Outer Space Treaty is the concept of an “astronaut”, but there is no express definition for that term in either instrument. Similarly, the Rescue Agreement uses the term “personnel of a spacecraft” and there is no express definition for that term in the Rescue Agreement. There is also no express guidance in that or the other treaties to indicate whether there is a distinction between the terms, considering the adoption of the two treaties were separated in time by mere months in the late 1960s.

In the remainder of the Twentieth Century, when all manned space flight were conducted within the framework of governmental space programs conducted by State agencies, the absence of such definitions was not of much significance. This is because all individuals in outer space would be professional astronauts that have been launched into outer space within the framework of governmental space programs. However, as private individuals are launched into orbit as commercial space tourists by governmental space programs and the advent of private manned space flight, the implications of the lack of a definition of the term “personnel of a spacecraft” is becoming increasingly acute.

The subject has attracted some academic debate. On one view, a person must be conducting their activities for the benefit and in the interests of all States and regarded as an envoy of mankind in outer space to be considered an “astronaut” or “personnel of a spacecraft”.<sup>32</sup> This means that there is discretion on the part of the States to decide whether a person is to be considered an astronaut or spacecraft personnel, depending on the nature of the functions and activities being conducted by the person in outer space, and thus be cloaked with the protection of the

Rescue Agreement and Article V of the Outer Space Treaty. This view is supported by the distinction made by the partners of the International Space Station between a professional or governmental astronaut and a “space flight participant” or a space tourist.<sup>33</sup> In other words, a person may conceivably be excluded from the definition of an astronaut or spacecraft personnel either by official designation or by an objective determination by States based on considering the nature of the activities conducted by the person in outer space.

It is respectfully submitted that this restrictive view of the definitions of “astronaut” and “personnel of a spacecraft” is somewhat inconsistent with the language of the Outer Space Treaty and the Rescue Agreement. Article V of the Outer Space Treaty expressly requires States to regard astronauts as envoys of mankind. For the restrictive view to be correct, the language would need to be reversed so that envoys of mankind are to be regarded as astronauts. In other words, Article V of the Outer Space Treaty is to be read as imposing obligations on how astronauts are to be regarded and not as setting out the criteria as to who would constitute an astronaut for the purposes of the Outer Space Treaty. The same, of course, can be said in relation to Paragraph 9 of the Principles Declaration.

On the other hand, there is some academic support for a broader interpretation of “personnel of a spacecraft” so that it would include not only professional and governmental astronauts but also passengers and space tourists. In this context, the terms of the Rescue Agreement would apply in connection with all individuals in space, regardless of their designated status and activities. This would appear to be the more humanitarian expression of the obligations imposed under the Rescue Agreement. It may also be suggested that the use of the term

“personnel of a spacecraft” in the Rescue Agreement in place of “astronaut” in the Outer Space Treaty is to remove the ambiguity that may exist in the use of the term “astronaut” so that all individuals on board a spacecraft would be considered within the scope of the Rescue Agreement.

Further, the paragraphs of the preamble of the Rescue Agreement make express reference to the provisions of the Outer Space Treaty in relation to “astronauts” and that the Rescue Agreement is to “develop and give further concrete expression to these duties”. If the Rescue Agreement, taken as a whole, is an “expression” rather than an “extension” of Article V of the Outer Space Treaty, then “personnel of a spacecraft” must mean the same or less than “astronaut”. Therefore, it would not follow that the term “astronaut” would have a narrower definition than the term “personnel of a spacecraft”.

### Concluding Observations

It is apparent that the definitions of “component parts” and “launching authority” and the potential for the use of flags of convenience have significant potential implications arising from the privatisation and globalisation of the contemporary space industry. To address these issues as well as other contemporary problems arising from the terms of the Rescue Agreement, some revision of the Rescue Agreement or an internationally agreed resolution of these definitional issues will be necessary.

---

<sup>\*</sup> Associate, Legal, PricewaterhouseCoopers, Australia. Member of the Board of Directors of the IISL and the space law committees of the IBA and the ILA. Fellow, Commercial Law Association of Australia. The views and opinions expressed or implied in this paper are those of the author only and are not necessarily those of any organisation with which he is associated.

<sup>1</sup> Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968) 672 U.N.T.S. 119; T.I.A.S.

6599; 19 U.S.T. 7570, opened for signature on 22 April 1968 (entered into force on 3 December 1968).

<sup>2</sup> United Nations Office of Outer Space Affairs, *Status of International Agreements Relating to International Activities in Outer Space* (2008), at <<http://www.unoosa.org/oosa/en/SpaceLaw/treatystatus/index.html>>, last accessed on 31 August 2008.

<sup>3</sup> Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, General Assembly Resolution 1962 (XVIII), adopted without a vote on 13 December 1963.

<sup>4</sup> Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, General Assembly Resolution 1962 (XVIII).

<sup>5</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967) 610 U.N.T.S. 205; 18 U.S.T. 2410; T.I.A.S. 6347, opened for signature on 27 January 1967 (entered into force on 10 October 1967).

<sup>6</sup> U.N.Doc. A/AC.105/C.2/L.2.

<sup>7</sup> U.N.Doc. A/AC.105/C.2/L.9.

<sup>8</sup> U.N.Doc. A/AC.105/C.2/L.2.

<sup>9</sup> U.N.Doc. A/AC.105/C.2/L.21.

<sup>10</sup> U.N.Doc. A/AC.105/C.2/L.23.

<sup>11</sup> U.N.Doc. A/AC.105/C.2/L.28.

<sup>12</sup> General Assembly Resolution 2345 (XXII).

<sup>13</sup> Rescue Agreement, Article 1.

<sup>14</sup> *Ibid.*, Articles 2 and 4.

<sup>15</sup> *Ibid.*, Articles 3 and 4.

<sup>16</sup> *Ibid.*, Article 6. In the event of the launch being conducted by an international organisation that has not accepted the provisions of the Rescue Agreement, its Member States would presumably be regarded as the “launching authorities” for the purposes of the Rescue Agreement.

<sup>17</sup> *Ibid.*, Article 5(1).

<sup>18</sup> *Ibid.*, Article 5(2) and (3).

<sup>19</sup> *Ibid.*, Article 5(3).

<sup>20</sup> *Ibid.*, Article 5(4).

<sup>21</sup> The Principles Relevant to the Use of Nuclear Power Sources in Outer Space (the “**Nuclear Power Sources Principles**”) establishes a contrary position; see the Nuclear Power Sources Principles, Principle 9(3).

<sup>22</sup> Vladlen S. Vereshchetin and Gennady M. Danilenko, *Custom as a Source of International Law of Outer Space* (1985) 13 J. SPACE L. 22; and Gennady M. Danilenko, *Outer Space and the Multilateral Treaty-Making Process* (1989) 4 BERKELEY TECH. L. J. 217.



- <sup>23</sup> Bin Cheng, *“Space Objects”, “Astronauts” and Related Expressions* (1991) 34 PROC. COLL. L. OUTER SP. 17.
- <sup>24</sup> Vladimir Kopal, *Some Remarks on Issues Relating to Legal Definitions of “Space Object”, “Space Debris” and “Astronaut”* (1994) 37 PROC. COLL. L. OUTER SP. 99 at 101.
- <sup>25</sup> Karl-Heinz Böckstiegel, *The Terms “Appropriate State” and “Launching State” in the Space Treaties: Indications of State Responsibility and Liability for State and Private Space Activities* (1992) 35 PROC. COLL. L. OUTER SP. 15.
- <sup>26</sup> Stephen Gorove, *Toward a Clarification of the Term “Space Object”: An International Legal and Policy Imperative?* (1993) 21 J. SP. L. 11 at 13-14.
- <sup>27</sup> William B. Wirin, *Space Debris and Space Objects* (1991) 34 PROC. COLL. L. OUTER SP. 45. This was a view supported in He, *Review of Definitive Issues in Space Law in the Light of Development of Space Activities* (1991) 34 PROC. COLL. L. OUTER SP. 32.
- <sup>28</sup> Cheng, *supra* note 23, at 24.
- <sup>29</sup> Convention on the Registration of Objects Launched into Outer Space (1976), opened for signature on 14 January 1975 (entered into force on 15 September 1976).
- <sup>30</sup> Convention on International Liability for Damage Caused by Space Objects (1972), opened for signature on 29 March 1972 (entered into force on 1 September 1972), Article I.
- <sup>31</sup> See Liability Convention, Article I; and Registration Convention, Article I.
- <sup>32</sup> See, for example, Stephen Gorove, *Interpreting Salient Provisions of the Agreement on the Rescue of Astronauts and Return of Objects Launched into Outer Space* (1968) 11 PROC. COLL. L. OUTER SP. 93; Yasuaki Hashimoto, *The Status of Astronauts Towards The Second Generation of Space Law* (1993) 36 PROC. COLL. L. OUTER SP. 93; and Patrick Collins and Koichi Yanemoto, *Legal and Regulatory Issues for Passenger Space Travel* (1998) 41 PROC. COLL. L. OUTER SP. 224.
- <sup>33</sup> Marietta Benkö and Kai-Uwe Schrogl, *SPACE LAW: CURRENT PROBLEMS AND PERSPECTIVES FOR FUTURE REGULATION* (2002) at 202; and Andre Farand, *Commercialisation of International Space Station Utilisation: The European Partner’s Viewpoint* (2003) 18 AIR & SP. L. 83.