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**LIABILITY AND PEACEFUL, CIVIL SPACE ACTIVITIES AT  
NATIONAL, REGIONAL AND INTERNATIONAL LEVELS:  
SELECTED LEGAL ISSUES**

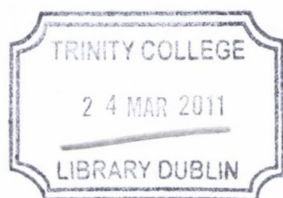
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## **CHAPTER VI: REGIONAL LAW AND SPACE ACTIVITIES: EUROPE, ESA AND A CASE STUDY OF EC CONSUMER LAW**

### **Chapter VI: Regional Law and Space Activities: Europe, ESA and a Case Study of EC Consumer Law .....239**

1. Introduction .....	240
2. The European Space Agency .....	241
2.1 History and Competence .....	241
2.2 Scope of Liability .....	242
2.3 Conclusion .....	246
3. The European Communities.....	246
3.1 History and Competence .....	246
3.2 EC Space Policy .....	248
3.3 EC and ESA .....	248
3.4 Conclusion .....	252
4. A Case Study on EC Consumer Law .....	252
4.1 The Freedom to Provide Space Services.....	253
4.2 Protection of the Tourist .....	255
4.3 A Brief History of EU Consumer Policy .....	257
4.4 Objectives and Principles of Community Consumer Law.....	258
4.5 The Image of the Consumer.....	259
4.6 Consumer Rights in Community Law .....	260
4.7 The Unfair Terms Directive .....	262
4.8 The Directive on Liability for Defective Products.....	263
4.9 The Distance-Selling Directive .....	265
4.10 The Package Holidays Directive.....	266
4.10.1 <i>Definition of a Package</i> .....	267
4.10.1.1 <i>'Pre-Arranged'</i> .....	268
4.10.1.2 <i>'Inclusive'</i> .....	268
4.10.1.3 <i>'Transport'</i> .....	268
4.10.1.4 <i>'Accommodation'</i> .....	269
4.10.1.5 <i>'Other Tourist Service'</i> .....	269
4.10.2 <i>The Parties to the Contract</i> .....	271
4.10.3 <i>Obligations of Operators</i> .....	272
4.10.3.1 <i>Pre-Contractual Responsibility</i> .....	272
4.10.3.2 <i>Pre-Departure Obligations</i> .....	273
4.10.3.3 <i>Post-Departure Obligations</i> .....	274
4.10.4 <i>Financial Obligations</i> .....	276
4.10.5 <i>Liability for Damages</i> .....	277
4.10.5.1 <i>Leitner v TUI</i> .....	278
4.11 Advertising Law.....	279
4.11.1 <i>Application of Directive 84/450 to Space Services</i> .....	280
4.11.1.1 <i>Implementation of the Directive</i> .....	281
4.11.2 <i>Comparative Advertising</i> .....	283
4.11.3 <i>Actions Against Misleading and Comparative Advertisers</i> .....	287
4.11.4 <i>Other Directives</i> .....	287
4.11.5 <i>Minimal Standards and National Laws</i> .....	289

4.11.6 Challenging National Advertising Legislation.....	289
5. Conclusion.....	293

## 1. Introduction

European public sector investment in civil space amounts to about €6bn, of which about half is invested through the European Space Agency; the balance is invested through national programmes. The EC has increased funding for space research and development to €1435M spread over the period 2007-2013.<sup>1</sup>

Space can contribute to European cohesion and identity, reaching citizens across all countries. It can also provide valuable support to European external policies, particularly humanitarian aid and development policy.<sup>2</sup>

This chapter will consider the major actors in European space activities, specifically the European Union and the European Space Agencies. The first part of the chapter will consider briefly their history with regard to space activities, the scope of their competence in the formation and regulation of space policy and regulation in Europe and their interaction with each other. The position of ESA's liability will also be examined. The second part of the chapter will address the potential application of European Community consumer law to the private commercial space carriage of persons industry and space tourists as a case study. The EC and ESA are separate independent subjects of public international law without direct institutional interrelations.<sup>3</sup> They have individual histories, ideologies, and policies and this has impacted on their respective and joint contributions to European space activities.

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<sup>1</sup> ESA, *European Space Industry in a Global Context: Facts and Figures*, p.2, available at [http://ec.europa.eu/enterprise/space/doc\\_pdf/fact\\_and\\_figures\\_en.pdf](http://ec.europa.eu/enterprise/space/doc_pdf/fact_and_figures_en.pdf)

<sup>2</sup> Commission of the European Communities, Communication from the Commission to the Council and the European Parliament: European Space Policy, Brussels 26.7.2007, COM(2007) 212 Final, p.4.

<sup>3</sup> Kunzmann, K. and Cloppenburg, J., "The Co-Operation of ESA and EC and the Relationship of their Legal Regimes," (2004) 47 *Proc Coll L of Out Sp* 156, p.157. See Art.XV(1) of the ESA Convention.

## 2. The European Space Agency

### 2.1 History and Competence

ESA currently has seventeen Member States<sup>4</sup> and five co-operating states.<sup>5</sup> ESA was the result of a fusion of two separate entities, ESRO (which specialised in the development and construction of satellites) and ELDO (which specialised in the development of rocket launchers), which merged on the 31<sup>st</sup> May 1975.<sup>6</sup> Ireland joined the agency that year although it was not a founding state. ESA launches from Kourou in French Guiana. Its entire budget for 2006 amounted to €2904m of which Ireland provided approximately 3%. ESA's founding document is the ESA Convention of 1980.<sup>7</sup> Under Article II of the 1980 ESA Convention, its activities are limited to the provision and promotion, for exclusively peaceful purposes, "cooperation among European States in space research and technology and their space applications, with a view to their being used for scientific purposes and for operational space applications systems." This is to be accomplished by elaborating and implementing a long-term European space policy, by recommending space objectives to its Member States, and by concerting the policies of its Member States with respect to other national and international organisations and institutions;<sup>8</sup> by elaborating and implementing activities and programmes in the space field;<sup>9</sup> by coordinating the European space programme and national programmes,<sup>10</sup> and by

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<sup>4</sup> Austria (30.12.1986); Belgium (03.10.1978); Denmark (15.09.1977); Finland (01.01.1995); France (30.10.1980); Germany (26.07.1977); Greece (16.03.2005); Ireland (10.12.1980); Italy (20.02.1978); Luxembourg (17.06.2005); Netherlands (06.02.1979); Norway (30.12.1986); Portugal (01.07.2000) Spain (07.02.1979); Sweden (06.04.1976); Switzerland (19.11.1976) and the United Kingdom (28.03.1978).

<sup>5</sup> Hungary, Czech Republic, Romania, Poland and Estonia.

<sup>6</sup> See generally, Krige, J., Russo, A., and Sebesta, L., *A History of the European Space Agency*, Vol II: The Story of ESA 1973 to 1987, (ESA Publications Division, Noordwijk, 2000), p.34 and Kayser, Valérie, *Launching Space Objects: Issues of Liability and Future Prospects*, Kluwer Academic Publishers, Dordrecht, 2001, p.135 *et seq.*

<sup>7</sup> Ref. CSE CS(73)19, Rev.7. Entry into Force: 13<sup>th</sup> May 1980.

<sup>8</sup> Art. II(a) of the 1980 ESA Convention.

<sup>9</sup> Art. II(b) of the 1980 ESA Convention.

<sup>10</sup> Art. II(c) of the 1980 ESA Convention.

integrating the latter progressively and as completely as possible into the European space programme, in particular as regards the development of applications satellites and by elaborating and implementing the industrial policy appropriate to its programme and by recommending a coherent industrial policy to its Member States.<sup>11</sup> There is no judicial review of the adherence of Member State's to their obligations under the Convention however it may be excluded from membership by two-thirds majority vote.<sup>12</sup> Disputes concerning interpretation or application of the Treaty itself may be submitted to arbitration by virtue of Art.XVII. ESA is also empowered by virtue of Art.XIV(1) of the 1980 Convention to co-operate with other international organisations, institutions and Governments and to conclude agreements to that effect.<sup>13</sup> Article XIV(2) states that such cooperation may take the form of participation by such organisations or States in programs of the agency or via associate membership. The detailed arrangements are determined by the Council by a two-thirds majority of Member States.

## **2.2 Scope of Liability**

The ESA has been accepted by the United Nations as an international organisation bound by the Outer Space Treaty and the Liability Convention.<sup>14</sup> It may be therefore be held directly accountable by State parties to those instruments and under customary international law. Its liability for damage (including death, injury, loss or prejudice) is set out in the Resolution of the Council of the European Space Agency on the Agency's Legal Liability.<sup>15</sup> The Agency must indemnify Member States and States participating in its space programs or activities against liability incurred by them as a result of the execution of such programs or activities where such a State is held liable as a "launching State" within the meaning Liability Convention or where ESA has so agreed by virtue of a special agreement concluded between ESA and the

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<sup>11</sup> Art. II(d) of the 1980 ESA Convention.

<sup>12</sup> Art.XVIII of the 1980 ESA Convention.

<sup>13</sup> See Baudin, C., "Co-Operation and International Agreements: Article XIV of the ESA Convention," [1998] 23 *Air & Space Law* 8.

<sup>14</sup> Declaration of Acceptance of the United Nations Convention by the Agency is operative since 20 September 1976,

<sup>15</sup> ESA/C/XXII/Res.3, 13 December 1977.

State concerned. ESA may advance a sum to the State concerned in order to meet a claim.<sup>16</sup> But if a Member State or participating State services performs services for ESA in furtherance of the latter's space programs or space activities and, in particular where it is designated a 'launching state' in this regard, then it is for that State to refund the amount of compensation to ESA.<sup>17</sup> Where a claim is presented to the Agency, it conducts its own proceedings. In the event that a claim is addressed to a Member State or a participating State, the resolution imposes an obligation on that State to consult with the Agency without delay. ESA, in such circumstances may join in the proceedings (if the applicable law so permits) and may substitute itself for the State involved if the latter so requests. Any Member State or a participating State may join the State involved or ESA in the proceedings if the applicable law so permits. Any State involved must adhere to the directives jointly agreed between ESA and that State in respect of the proceedings and the settlement. Where a Member State or a participating State is presenting its claim for compensation, it must be presented to ESA first.<sup>18</sup> Any non-Member participating State will be bound by the provisions of the resolution through the inclusion of a clause within the agreement.<sup>19</sup>

Where ESA, a Member State or a participating State incurs international liability in connection with the launching of space objects and execution of associated services, by a State which is not a Member State or a participating State or a body under the jurisdiction of the said State, ESA will require that the launch agreement or contract to provide that where a claim for compensation is presented to said State or body, ESA must be authorised to follow, or to join in, the proceedings. If the claim is presented to the Agency, ESA will ask said State or body to join in the proceedings. The resolution also provides that the amount paid in compensation will be shared between the Agency and the State or body in question proportionately to their respective responsibilities for the damage; at the Agency will not be liable for damage caused by gross negligence, or a deliberate act or omission on the part of

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<sup>16</sup> Art. III(2).

<sup>17</sup> Art. A-I(2)

<sup>18</sup> Art. II(b).

<sup>19</sup> Art IV.



said State or body.<sup>20</sup> The Agency's Council may decide unanimously to enter into an agreement derogating from these principles.

The Agency has entered into specific agreements with national space agencies, with clauses specifically regulating liability. For example, in relation to the development of the Ariane V, ESA entered into an agreement with CNES.<sup>21</sup> Art. 13 of that agreement provided that

each party bear the cost of compensation for damage or injury of any kind sustained by its personnel as a result of activities..., even where the other party is responsible for such damage or injury, except, however, in the event of gross negligence by that party or its personnel. Each party shall further guarantee the other party against any claims and legal actions that might be brought by the victim, his heirs or the social security system concerned in such cases.

This also applies to any kind of damage caused by the personnel of the parties to the property of the parties themselves, although it is entirely without prejudice to the rights and actions of ESA or CNES against third parties. ESA also has an agreement with the French Government governing liability in its use of the launch site in Kourou.<sup>22</sup> The Agreement applies the resolution. It provides in Art. 11, that

the Agency shall hold the French Government harmless from any claims made against it in respect of loss or damage... caused to the Agency itself, to a member State, to a third State, to nationals of those States or to any other person by reason of the use of the CNES/CSG facilities for the purposes of an Ariane development programme of the Agency.

However, this 'hold-harmless arrangement' will not apply if the loss or damage arises out of gross negligence or a wilful act or deliberate omission on the part of the French Government or its agents. Art.11.2 provides that the French Government

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<sup>20</sup> Art. B-I

<sup>21</sup> Agreement between the European Space Agency and the Centre National d'Etudes Spatiales on the execution of the Ariane-5 Development Programme, 3 October 1989.

<sup>22</sup> Agreement between the French Government and the European Space Agency concerning the Guiana Space Centre 29 November 1993.

will *not* be held harmless “from any claims in respect of loss or damage caused to the Agency itself, to a third State, to nationals of those States or to any other person by reason of the execution at the CSG of activities or programmes other than those of the Agency.” In relation to claims (of any kind) arising from the execution of the CSG of launch activities by the Ariespace company or by persons in its service causing loss or damage to the Agency, to a member States, to a third State, to nationals of those States or to any other person, the French Government will hold ESA and its Members harmless.<sup>23</sup> Once more this is with the proviso that the loss or damage does not arise out of gross negligence or a wilful act or deliberate omission on the part of ESA, its employees and Member States (with the exception of the French State or of public bodies under its authority).

Where ESA is the client of Ariespace, the hold-harmless arrangement will not apply irrespective of any negligence on the part of the Agency if the loss or damage is found to be due to the its satellite, in which case the expenses incurred in respect of the proceedings and the making good of the loss or damage will be by ESA and apportioned among the States participating in the satellite programme concerned. Under Art.11.4., the making good of any other loss, damage or injury of any kind connected with the implementation of the Agreement and suffered by ESA or its personnel by reason of the activities of the French Government and/or of CNES at the CSG, or by the French Government and/or CNES by reason of ESA’s activities at the CSG, will be agreed between it and the CNES.

Similarly, ESA and the Government of Italy has an agreement with the Government of Kenya concerning the operation of ESA equipment on the perimeter of the San Marco Tracking and Launch Station in Malindi.<sup>24</sup> Article 10 provides:

The Government of the Republic of Kenya shall not be held liable, at either national or international level, through the activities of the Agency on

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<sup>23</sup> *Ibid*, Art.11.3.

<sup>24</sup> Protocol between the European Space Agency, the Government of the Republic of Italy and the Government of the Republic of Kenya on the setting up and operation of European Space Agency equipment within the perimeter of the San Marco Satellites Tracking and Launching Station in Malindi, Kenya, and on the cooperation between the Government of the Republic of Kenya and ESA for peaceful purposes, 13 September 1995.

its territory, for acts or omissions by the Agency or persons designated by it, acting or failing to act within the limits of their duties.

Where Kenya's international liability is however involved, the Government has a right of recourse against the Agency, except where this involvement is due to gross negligence, an act or deliberate omission of the Kenyan Government or a person acting on its behalf. As with the Agreement between it and the French Government, there is a 'hold harmless arrangement set out in Art.10.3<sup>25</sup> which applies save where the injuries and damages in question are "due to gross negligence, an act or deliberate omission of the Government of the Republic of Kenya or a person acting on its behalf."

## **2.3 Conclusion**

ESA has acceded to the Outer Space Treaty and the Liability Convention as an international intergovernmental organisation and may be liable jointly and severally with its Member States for its launching activities. To mitigate against the exposure of its Members and other non-party States, ESA enters into agreements providing for indemnity in the case of either being exposed to the financial costs arising from a successful claim.

## **3. The European Communities**

### **3.1 History and Competence**

The EC was founded in 1951 as the European Coal and Steel Community<sup>26</sup> and following the EU Treaty<sup>27</sup> was re-named as the EU.<sup>28</sup> There is much controversy

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<sup>25</sup> The entire clause provides: In the event any suit, action or claim is brought against the Government of the Republic of Kenya in respect of, or in relation to the activities carried out at the Malindi station, the Agency will hold harmless the Government of the Republic of Kenya against losses and claims in respect of injuries and damages, unless such injuries and damages are due to gross negligence, an act or deliberate omission of the Government of the Republic of Kenya or a person acting on its behalf.

<sup>26</sup> Treaty Establishing the Coal and Steel Community (1951) 261 U.N.T.S 140.

over whether the EU has legal personality<sup>29</sup> and, for this reason, reference will be made only to the EC.<sup>30</sup> In 1987, the Single European Act introduced a competence relating to research and development upon which the EC relies for competence in space activities. There is no specifically enumerated space competence in the existing instruments. Currently the legal basis for harmonising space policy may involve reliance on Art.2 of the TEC (sustainable development of economic activities), Art.3(h) and (m) (strengthening competitiveness of European industry), Art.95 (approximation of laws on the internal market) and Art.308 (inferred powers).<sup>31</sup> Arts 189(1) and (2) of the Lisbon Treaty now confer a wide space competence. The Draft Constitution also provides for a specific space competence on the part of the EC. Article I-13 states:

In the areas of research, technological development and space, the Union shall have competence to carry out actions, in particular to define and implement programmes; however, the exercise of that competence may not result in Member States being prevented from exercising theirs.

Article III-150 provides that the EC must draw up a European Space Policy in order to promote scientific and technical progress, industrial competitiveness and the implementation of its policies. The EC may also “promote joint initiatives, support research and technological development and coordinate the efforts needed for the exploration and exploitation of space”. Significantly, the EC envisages the establishment of a European law or framework through the creation of a European Space programme. Article 170 of the Treaty of the European Community in

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<sup>27</sup> The Treaty on European Union 31 ILM 247.

<sup>28</sup> See Craig and de Búrca, *EU Law: Texts, Cases and Materials*, (OUP, 2003), ch.1.

<sup>29</sup> See Curtin and Dekker, “The EU as a ‘Layered’ International Organization: Institutional Unity in Disguise” in Craig and de Búrca (eds), *The Evolution of EU Law*, (OUP, 1999), pp.83-136 at pp.95-96.

<sup>30</sup> Treaty Establishing the European Economic Community (1957) 298 U.N.T.S.11.

<sup>31</sup> Marchisio, Sergio, “Potential European Space Policy and Its Impact on National Space Legislation,” Paper delivered at the Berlin Workshop *Towards a Harmonized Approach for National Space Legislation in Europe*, 29<sup>th</sup> – 30<sup>th</sup> January 2004.

conjunction with Art.300(2) has been used as the EC's basis to conclude international agreements with ESA.<sup>32</sup>

### **3.2 EC Space Policy**

The Commission has observed that:

Space systems are strategic assets demonstrating independence and the readiness to assume global responsibilities...However the space sector is confronted with high technological and financial risks and requires strategic investment decisions.<sup>33</sup>

On the basis the Commission has formulated a space policy funded under the framework programme.<sup>34</sup> This policy has several aims specifically to develop and exploit space applications serving public policy objectives and the needs of European enterprises and citizens, including in the field of environment, development and global climate change; to meet Europe's security and defence needs as regards space; to ensure a strong and competitive space industry which fosters innovation, growth and the development and delivery of sustainable, high quality, cost-effective services; to contribute to the knowledge-based society by investing strongly in space-based science, and playing a significant role in the international exploration endeavour and to secure unrestricted access to new and critical technologies, systems and capabilities in order to ensure independent European space applications.<sup>35</sup>

### **3.3 EC and ESA**

The EC and ESA share a co-operative relationship of some thirty years duration which has been furthered by the framework agreement that entered into force in May

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<sup>32</sup> See Reuter, *infra*, p.150.

<sup>33</sup> *Ibid*, p.5.

<sup>34</sup> The Seventh EC Framework Programme for Research and Technological Development (COM).

<sup>35</sup> Commission of the European Communities, Communication from the Commission to the Council and the European Parliament: European Space Policy, Brussels 26.7.2007, COM(2007) 212 Final, p.5.

2004.<sup>36</sup> The Framework Agreement (FA) was adopted to address and remedy the defects of the preceding ‘project-oriented approach’<sup>37</sup> to ESA/EC relations as it was clear that this would not enable the development of a coherent space policy for Europe. The need for such coherency had been identified by ESA in an independent report commissioned by the Director General in 2000.<sup>38</sup> The aim of the FA is the “coherent and progressive development of an overall European Space Policy ... to link demand for services and applications using space systems in support of the Community policies with the supply of space systems and infrastructure necessary to meet that demand.”<sup>39</sup> The FA provides “a solid base for coordination arrangements between intergovernmental and Community actions” to pursue “closer and more efficient cooperation”.<sup>40</sup> Article III sets down a non-exhaustive list of fields of co-operation including science, earth observation, navigation, launchers and human spaceflight. However, the FA does not entail any specific expenditure or regulatory measures,<sup>41</sup> nor does it set out the exact method by which closer co-operation is to be achieved. The Report of 2000 posited a number of means for furthering the

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<sup>36</sup> Framework Agreement between the European Community and the European Space Agency: approved on the EC side by Council Decision (12858/03 RECH 152 7 October 2003). See Reuter, T., “The Framework Agreement Between the European Space Agency and the European Community”, (2004) 47 *Proc Coll L of Out Sp L* 148 [hereafter Reuter], Reuter, T., and Kunzmann, K., “Crafting a Legal Framework for a Coherent Future Structure for European Space Activities” [2004] 20 *Space Policy* 25, Reuter, T., “The Framework Agreement Between the ESA and the EC: A Significant Step Forward? [2004] *ZLW* 56, Pörnczi, E., “ESA and EU Cooperation for a Better Future of the European Citizens” (2004) 47 *Proc Coll L of Out Sp* 171 and Gilbert, J.M. and Rodríguez, M., “European Space Policy: A Common Future for ESA and EU” (2004) 47 *Proc Coll L of Out Sp* 166.

<sup>37</sup> Reuter, *supra*, p.149. Example of co-operative projects include: GMES (Global Monitoring for Environment and Security), GNSS (Council Regulation (EC) No 1321/2004 of 12 July 2004 on the establishment of structures for the management of the European satellite Radio Navigation Programmes OJ L 246, 12.07.2004 ) and Galileo (Council Regulation (EC) No 876/2002 of 24 May 2002 setting up the Galileo Joint Undertaking O J L 138, 28.5.2002)

<sup>38</sup> Bildt, C. Peyrelevalde, J. and Späth, L., *Towards a Space Agency for the European Union*, (Paris, 2000) (available at [http://esamultimedia.esa.int/docs/annex2\\_wisemen.pdf](http://esamultimedia.esa.int/docs/annex2_wisemen.pdf)), pp.2 and 6.

<sup>39</sup> See Reuter, *supra*, p.150.

<sup>40</sup> Commission, *Communication*, p.13

<sup>41</sup> Commission Staff Working Document, Communication from the Commission to the Council and the European Parliament: European Space Policy, Summary of the Impact Assessment, Brussels, 26.2.2007, SEC (2007) 506.

relationship and did not exclude the future possibility of the ESA coming under the pillar structure of the EC.<sup>42</sup> However, the central submission was that the EC remain the overall policy maker with ESA as the de facto implementing agency. The option of integration faces several obstacles. First there is a significant difference in member states of each organisation, although the main financial contributors to ESA are all EC member states. Nonetheless, the possibility of a breach of material norms by double-members towards members of a sole organization and the organization itself (whether ESA or the EC) may arise.<sup>43</sup> Secondly, the geographical return policy of ESA conflicts with the common market ideology at the heart of the Treaty of Rome. Under the geographical return policy, ESA “awards contracts to the industry of its member states according to the member state’s respective financial contributions to the ESA programmes”.<sup>44</sup> The principle is encapsulated in Art.VII(1)(c) of the ESA Convention<sup>45</sup> and is expanded in Art. IV of Annex V on industrial policy.<sup>46</sup>

The EC has not accepted this as binding in its relations with ESA. Art.5.3. states that the EC shall “under no circumstances... be bound to apply the rule of geographical distribution contained in the ESA Convention.” The FA also excludes security that fall under the EU’s second pillar of common foreign and security policy, although the original mandate of the Director General extended to it.<sup>47</sup> Article II of the ESA Convention would appear to require such exclusion. On the 22nd May 2007, the

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<sup>42</sup> Bildt *et al, supra*, p.11.

<sup>43</sup> See Kunzmann and Cloppenburg, *supra*, pp.159-164.

<sup>44</sup> Reuter, *supra*, p.149. See also Imbert P., *et al*, “La Politique Industrielle De l’ESA – Le Concept Evolutif du ‘Juste Retour’ ” [1994] *ESA Bulletin* 78 and Morel de Westgaver, E., *et al*, Le Concept du ‘Juste Retour’ : Contrainte ou Instrument d’Intégration Européenne ?” [1989] *59 ESA Bulletin* 62.

<sup>45</sup> It provides: “The industrial policy which the Agency is to elaborate and apply by virtue of Article II *d* shall be designed in particular to ... ensure that all Member States participate in an equitable manner, having regard to their financial contribution, in implementing the European space programme and in the associated development of space technology; in particular the Agency shall, for the execution of its programmes, grant preference to the fullest extent possible to industry in all Member States, which shall be given the maximum opportunity to participate in the work of technological interest undertaken for the Agency.”

<sup>46</sup> This provides that “[a] Member State's overall return coefficient shall be the ratio between its percentage share of the total value of all contracts awarded among all Member States and its total percentage contributions”.

<sup>47</sup> Reuter, *supra*, p.150.

fourth European Space Council<sup>48</sup> (a concomitant meeting of the Council of the EC and the Council of the ESA)<sup>49</sup> adopted a resolution setting forth Europe's current space policy which recognised the need for further flexibility and some evolution of the EC/ESA relationship.<sup>50</sup> The resolution calls on the Commission to “draw on the management and technical expertise of ESA for managing the European Community-funded R&D space infrastructure programmes with ESA coordinating the relevant agencies and entities in Europe” further grounding relations in the practical exchange of expertise and knowledge. This role is additionally stated to include:

- supporting the European Commission as technical expert in the elaboration of European Community initiatives involving space-related activities and relevant work programmes, and in the selection and monitoring of relevant work contractors,
- the management by ESA of European Community space-related activities in accordance with the rules of the European Community.

The impact of this co-operative relationship at the international level is also acknowledged and the Commission, the ESA Director General and the Member States are invited to “develop and pursue a joint strategy and establish a coordination mechanism on international relations.” Such a strategy must be consistent with Member State activities and aimed at strengthening Europe's role in the global space field and at benefiting from international cooperation.<sup>51</sup> Annex 3 to the Resolution sets out the key issues for consideration in the development of this strategy, including improving access to third markets for European space products and services, reducing the cost of acquiring space systems by the targeted use of international cooperation, enabling Europe to participate in ambitious programmes the cost of which is too great for any one space power, attracting international partners to European conceived programmes and reinforcing the contribution of

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<sup>48</sup> The previous meetings occurred 25<sup>th</sup> November 2004, 7<sup>th</sup> June 2005 and 28<sup>th</sup> November 2005.

<sup>49</sup> Established under Art.8 of the FA. See Reuter, *supra*, pp.153-154.

<sup>50</sup> Resolution on the Space Policy as adopted by the Space Council 22 May 2007, RECH 153, COMPET 165, ENV292, COSDP 443, TRANS 185, para. 12.

<sup>51</sup> Resolution, para.17



Europe to global initiatives , making full use of the potential of space systems for sustainable development, namely in support of developing countries, in particular in Africa. The joint strategy for international relations in space should be developed by the end of 2008.

### **3.4 Conclusion**

The EU has a competence with regard to space activities and the need and importance of space infrastructure for continued economic stability has been recognised. The EU and ESA have a co-operative relationship which involves the financial support on the part of the former couples with the technical expertise of the latter on joint projects, such as Gallileo. While ESA is not within the pillars of the EU, indeed they have different Member States, it in effect functions as the de facto space wing of the EU and is a critical factor to the material success of the EU space policy.

## **4. A Case Study on EC Consumer Law**

European Union law is a vast body of different measures. Consumer law will form the focus of this case study which will address the application or potential application of EU measures to space tourists. This is of particular interests for several reasons. First, there are a number of EU states that do not have a specific domestic space law regime, Ireland being amongst them. Those that do so, such as Italy, Belgium, Germany, France and the United Kingdom, do not have national legislation that regulates space tourist contracts as is the case in the US. In this regard, Community measures in relation to consumer protection<sup>52</sup> that have the potential to apply to the space tourism market are of particular interest as these measures were not drafted in

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<sup>52</sup> Lasok, K.P.E., *Law and Institutions of the European Union*, 7<sup>th</sup> ed., (Butterworths, London, 2001), ch.34, p.800 *et seq*; Kendall, V., *EC Consumer Law*, (Wiley Chancery, London , 1994); Weatherill, S. "Consumer Policy" in Craig, P. and De Búrca, G., *The Evolution of EU Law* (OUP, 1999), at pp. 693-720, Weatherill, S., *EC Consumer Law and Policy*, (Longman, London, 1997), Quinn, A., "Consumer Policy – No Longer the EC Cinderella," (1990) 18 *ILT* 171 and *Green Paper on European Union Consumer Protection*, Brussels, 2.10.2001, COM (2001) final.

the light of the needs of the emergent private commercial space industry. Such measures also provide a contrasting approach to existing specific national space law dealing with the industry such as the Commercial Space Launch Amendments Act 2004. Although it may lead to an inconsistency between the paternalism of consumer law and the current attitude towards space tourists should the US approach gain currency. Secondly, EU law ensures minimum standards and uniformity in a wide geographical area. The European Union, as one of the world's great economic blocks with a population of 501.26m<sup>53</sup>, is an ideal target market for the services sector, including private commercial space tourism services.<sup>54</sup> Given the size of the target market, an investigation into the current protection for space tourists is of interest. The consumer/tourist protection has provided in five directives will be considered: the Unfair Terms Directive, the Directive for Liability for Defective Products, the Distance-Selling Directive, the Package Holidays Directive and the Misleading Advertising Directive. But first the space carriers' freedom to provide such services will be briefly examined.

#### **4.1 The Freedom to Provide Space Services<sup>55</sup>**

Art. 49 (ex. Art.59) of the Treaty establishing the European Community provides for a prohibition on restrictions on the freedom to provide services in respect of nationals of Member States who are established in a State of the Community other than that of the person for whom the services are intended.<sup>56</sup> Measures may be extended to apply to nationals of third countries who provide services and who are established in the

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<sup>53</sup> On 1<sup>st</sup> January 2010. Excludes DOMs. Eurostat, Luxembourg, 2010.

<sup>54</sup> On the E.U. and tourism in general, see Bovagnet, F-C., *Statistics in Focus*, 18/2006 and Dimitrakopoulou, C., *Statistics in Focus*, 19/2006, Eurostat, 2006.

<sup>55</sup> See generally O'Brien, Z.N., "The Regulation of the Space Tourism Industry in Europe" UCD Legal Research Conference 8<sup>th</sup>-9<sup>th</sup> December 2007.

<sup>56</sup> See generally Craig, Paul and De Búrca, Gráinne, *EU Law: Text, Cases and Materials*, 3<sup>rd</sup> ed., (OUP, 2003), pp. 800-824, Crown, Giles, *Advertising Law and Regulation* (Butterworths, London, 1998), ch.12 and *Stichting Collectieve Antennevoorziening Gouda and Others v Commissariat voor de Media* (C-299/89) [1991] 1 ECR 4007.

Community. Both Art.49 and Art.50 have direct effect.<sup>57</sup> It is clear from the parameters provided in Art.50 (ex. Art.60) regarding ‘services’ that both advertising<sup>58</sup> and private space services fall within its scope as activities of a commercial character provided for remuneration within the meaning of Art.50 (ex Art.60)<sup>59</sup> (provided the remuneration does not come from the public purse of a Member State).<sup>60</sup> The recreational element to space tourism does not affect the construction of the activity as economic;<sup>61</sup> nor does the remuneration have to come from the recipient of the service.<sup>62</sup> However, Art.51 (ex Art.61), excludes transport services from the chapter as it is dealt with in Title V (ex IV).

Under Art.71 of Title V (ex Art.75) the Community is empowered to lay down common rules applicable to international transport to or from the territory of a Member State or passing across the territory of one or more Member States, the conditions under which non-resident carriers may operate transport within a Member State, measures to improve safety and any other appropriate provisions. It is possible therefore that either the services or the transport provisions may be relied on in respect of space tourism/ hospitality, with the choice depending on its interpretation either as a service or as a form of transport. Given the current state of development of space tourism and the ruling in *Cowan*, where a tourist was found to be the recipient of a service,<sup>63</sup> it is submitted to be viewed more as the former than the latter. However, there has been no determination by the ECJ on the matter.

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<sup>57</sup> *Van Binsbergen v. Bestuur van de Bedrijfsvereniging voor de Metaalnijverheid* (C-33/74) [1974] ECR 1299, para. 26.

<sup>58</sup> *Procureur du Roi v. Marc JVC Debauvère and Others* (C-52/79) [1980] ECR 833; *Re Giuseppe Saachi* (C-155/73) [1974] 1 ECR 409.

<sup>59</sup> See *SPUC v. Grogan* (C-159/90) [1991] ECR I-4685.

<sup>60</sup> *Belgium v. Humbel* (C-263/8)6 [1988] ECR 5365, at para.18 but see *Cowan v. Le Trésor Public* (C-186/87) [1989] ECR 195 and *Commission v. Spain* (C-45/93) [1994] ECR I-911.

<sup>61</sup> *HM Customs and Excise v. Schindler* (C-275/92) [1994] ECR 1039, paras 33-4.

<sup>62</sup> *Bond van Adverteerders v. The Netherlands* (C- 352/85) [1988] ECR 2085.

<sup>63</sup> *Cowan v. Le Trésor Public* (C-186/87) [1989] ECR 195.

## 4.2 Protection of the Tourist

It is well established in domestic law that consumers of services have certain entitlements,<sup>64</sup> such as an implied undertaking that the supplier has the necessary skill to render the service<sup>65</sup> and that s/he will supply the service with due skill, care and diligence.<sup>66</sup> Such laws come from a paternalist perspective on consumer-protection.<sup>67</sup> At a European level, the need to harmonise the law among member states is equally a factor.<sup>68</sup> It would seem discriminatory to allow some tourists to gain certain protections while others do not solely on the basis of destination. Consumer protection within other transport industries is highly advanced, at both national<sup>69</sup> and international levels, although such industries are at a more advanced stage. International conventions such as the Convention Concerning International Carriage by Rail, the Athens Convention relating to the Carriage of Persons and Luggage by Sea 1980, the Montreal Convention 1999/ Warsaw Convention 1929 all provide a measure of protection for consumer/passengers and balance not only the interests of consumers and industry but the competing approaches dictated by

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<sup>64</sup> For example, under the Sale of Goods and Supply of Services Act 1980 (IR), Sale of Goods and Services Act 1982 (UK), Consumer Guarantees Act 1993 (NZ); Consumer Protection Act 1999 (Malaysia Act 599), Supply of Goods and Services Act 1996 (Isle of Man IOM 1996-16); Supply of Services (Implied Terms) Ordinance (CAP. 257 Hong Kong); Consumer Protection Law 1969 (NYC).

<sup>65</sup> Sale of Goods and Supply of Services Act 1980 (IR) part IV, s.39 (a).

<sup>66</sup> Sale of Goods and Supply of Services Act 1980 (IR) part IV, s.39 (b).

<sup>67</sup> See the Sale of Goods Act 1893 (as amended in Ireland by the Sale of Goods and Supply of Services Act 1980) and *Leitner v TUI Deutschland GmbH & Co KG* (Case C-168/00) [2002] ECR I-2631; [2002] All ER (EC) 561. For the pre-Victorian protection measures, see Harvey, Brian and Parry, Deborah, *The Law of Consumer Protection and Fair Trading*, 5<sup>th</sup> ed. (Butterworths, London, 1996), p. 15 *et seq.*

<sup>68</sup> See *Club-Tour, Viagens E Turismo SA v. Garrido* (C-400/00) [2002] ECR I-4051 and Wilhelmsson, "Is there a European Consumer Law – and Should there Be One?" *Centro di Studi e Ricerche de Diritto Comparato e Straniero*, Saggi, Conferenze e Semenari, Roma 2000, No.41, p.10-14.

<sup>69</sup> See Walton, Cooper and Woolf (ed.s), *Charlesworth and Percy on Negligence*, 10<sup>th</sup> ed., (Sweet and Maxwell, London, 2001), at para. 9-84; *Readhead v. Midland Railway* (1869) L.R. 4 Q.B. 379; *Henderson v. H.E. Jenkins & Sons* [1970] AC 282, *Ritchie v. Western Scottish M.T. Co.*, 1935 S.L.T. 13, *Pearce v. Round Oak Steel Works* [1969] 1 W.L.R. 595; *Platzer v. Mammoth Mountain Ski Area* (2002) 104 Cal.App.4th 1253, at p.1260; *Rubin v. United Air Lines, Inc.* (2002) 96 Cal.App.4th 364; Cal.App.4th 364 and *De Vera v. Long Beach Pub. Transportation Co.* (1986) 180 Cal. App. 3d 782, 793; 225 Cal. Rptr. 789.

paternalism on the one hand and freedom to contract on the other. The Warsaw Convention is an example of a convention drafted during the initial stages of an industry which contains consumer protection elements, such as the invalidity of clauses limiting liability, which acts as a counterbalance to the financial cap on liability accorded to the carriers.

Furthermore, it is accepted that consumer protection generally is in the public interest; this is especially so where health and safety interests are involved. Consumer's economic interests are also protected in Community law.<sup>70</sup> This is critical where the consumer to a contract is the economically weaker party.<sup>71</sup> This economic imbalance has been acknowledged by the European Court of Justice (ECJ).<sup>72</sup> Community law accepts that consumers not only have rights to the protection of these interests but also to redress, information, education and representation.<sup>73</sup> The failure to provide any consumer protection for space passengers in a domestic space law regime would clearly be inconsistent not only with international passenger law but with domestic law generally and such an approach is unlikely, in the long term, to encourage a significant widening of the market-base.

The protection of tourists as consumers of a service<sup>74</sup> (viz. space transportation) is in clear conflict with the mandatory requirements of waiver and cross-waivers of

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<sup>70</sup>[1975] O.J. C92/1, Holland, *European Consumer Law*, (Stanbrook & Hooper, Suffolk, 1999); Reich, "From Contract to Trade Practices Law: Protection of Consumers' Economic Interests by the EC" in Wilhelmsson, Thomas (ed.), *Perspectives of Critical Contract Law*, (Dartmouth, Aldershot, 1993), p.55.

<sup>71</sup> See Harvey and Parry, *op cit*, p.13-21; Goldring, John, "Consumer Protection and the Trade Practices Act 1974-5" 6 *Federal L. Rev* at p.288 and Hondius, E., "The Protection of the Weak Party in a Harmonised European Contract Law: A Synthesis", (2004) 27(3) *Journal of Consumer Policy* 245.

<sup>72</sup> *Société Bertrand v Paul Ott KG* (C-150/77) [1978] ECR 1431, para 12/16.

<sup>73</sup>[1975] OJ C 92/1

<sup>74</sup> See *Luissi and Carbne v Ministero del Tesero* (Joined Cases 286/82 and 26/83) [1984] ECR II-667, para.16.

domestic law<sup>75</sup> and would be in conflict with exclusion clauses in contracts for carriage, though recent developments in the US space law regime look promising.

### 4.3 A Brief History of EU Consumer Policy<sup>76</sup>

The Treaty of Rome, as originally conceived, did not mention consumers aside from some marginal references<sup>77</sup> in articles 33 (ex Art.39), 34 (ex Art.40), 81 (ex Art.85) and 82 (ex Art.86). None the less, consumer policy developed through soft law measures expressly for the protection of consumer interests<sup>78</sup> and were recognised by the ECJ in cases where domestic legislation crystallised given consumer habits thus maintaining the advantage of national industries, in conflict with the free market<sup>79</sup>. With the passing of the Treaty of European Union (Maastricht, 1992) the Community at last gained an express competence in the field.

Two previous consumer strategies have acknowledged that “acquirers of goods and services should be protected against the abuse of power by the seller or supplier, in particular against one-sided standard contracts and the unfair exclusion of essential rights in contracts”.<sup>80</sup> There are a range of directives and regulations in place on unfair terms,<sup>81</sup> unfair commercial practices,<sup>82</sup> package holidays,<sup>83</sup> distance selling,<sup>84</sup>

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<sup>75</sup> For example, the Commercial Space Launch Activities Act 1988, US Code Title 49 ch. 701, s.70112(b).

<sup>76</sup> See Weatherill, Simon “Consumer Policy” in Craig, Paul and De Búrca, Gráinne, *The Evolution of EU Law* (OUP, 1999), at pp. 693-720, Weatherill, *EC Consumer Law and Policy* (Longman, London, 1997), ch.1 and Schulze, R., Schulte-Nölke, H. and Jones, J. (ed.s), *A Casebook on European Consumer Law* (Nomos, Baden-Baden, 1999), pp. 7-8.

<sup>77</sup> Weatherill, *op cit*, p. 693.

<sup>78</sup> For example: [1975] OJ C 92/1; [1981] OJ C 133/1; [1986] OJ C 167/1; COM (90) 98.

<sup>79</sup> For example: *Commission v. UK* (Case C-179/78) [1980] ECR 417; [1981] 1 CMLR 716; *Commission v Germany* (Case C-178/84) [1987] ECR 1227; [1988] 1 CMLR 780; *Commission v France* (Case C-154/89) [1991] ECR I-659, *Commission v Italy* (Case C-180/89) [1991] ECR I-709 and *Commission v Greece* (Case C-198/89) [1991] ECR I-727.

<sup>80</sup> [1975] OJ C 92/1 and [1981] OJ C 133/1. The current consumer strategy 2002-2006 will be replaced by the *Community Programme for Health and Consumer Protection 2007-2013* COM (2005) 115 final.

<sup>81</sup> Directive 93/13/EEC [1993] OJ L 95/29.

<sup>82</sup> Directive 2005/29/EC [2005] OJL 149/22.

doorstep selling,<sup>85</sup> consumer credit,<sup>86</sup> timeshares,<sup>87</sup> product liability and misleading and comparative advertising<sup>88</sup> that all offer a measure of protection to the consumer.<sup>89</sup>

#### 4.4 Objectives and Principles of Community Consumer Law

The goal of Community policy is to ensure “a high level of protection” for the consumer.<sup>90</sup> As with the similarly phrased objective regarding the environment, this does not mean that the Community aims for the highest levels of protection.<sup>91</sup> In addition there are a number of guiding principles;<sup>92</sup> these include having high safety standards, providing effective redress in cases of cross-border disputes, ensuring the consumer is not misled, fair contracts, protection while on holiday, easier price comparison and transparency.<sup>93</sup> The Commission has stated that transparency means that “consumers should be able to obtain, prior to conclusion of the contract, the information they need to make their decisions in full knowledge of the facts.”<sup>94</sup> The image of the consumer will more or less dictate the level of transparency and the degree and scope of protections afforded to him/her.

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<sup>83</sup> Directive 90/314/EEC [1990] OJ L 158/59.

<sup>84</sup> Directive 97/7/EC [1997] OJ L 144/19.

<sup>85</sup> Directive 85/577/EC [1985] OJ L 372/31.

<sup>86</sup> Directive 87/102/EEC [1987] OJ L 42/48.

<sup>87</sup> Directive 94/47/EC [1994] OJ L 280/83.

<sup>88</sup> Directive 84/450 [1984] OJ L250/17.

<sup>89</sup> See Micklitz and Weatherill, “Consumer Policy in the EC: Before and After Maastricht” (1993) 16 *Journal of Consumer Policy* 285.

<sup>90</sup> See Stuyck, Jules, “European Consumer Law After the Treaty of Amsterdam: Consumer Policy In or Beyond the Consumer Market” (2000) 27 *C.M.L.Rev.* 367, pp.392-3.

<sup>91</sup> *FRG v. Parliament and Council* (C-233/94) [1997] ECR I-2405, para.10.

<sup>92</sup> Health and Consumer Directorate-General, *Consumer Protection in the European Union: Ten Basic Principles*, 20<sup>th</sup> July 2004 available at <[http://europa.eu.int/comm/consumers/cons\\_info/10principles/en.pdf](http://europa.eu.int/comm/consumers/cons_info/10principles/en.pdf)>

<sup>93</sup> Micklitz, Hans, “Obligation of Clarity and Favourable Interpretation to the Consumer” in *Proceedings of the Conference on Unfair Terms Directive: Five Years Later Evaluation and Perspective*, 1-3<sup>rd</sup> July 1999, pp.158.

<sup>94</sup> *Report from the Commission on the Implementation of Council Directive 93/13/EEC of 5 April 1993 on Unfair Terms in Consumer Contracts*, COM 2000/0248/final, at III para.3.

## 4.5 The Image of the Consumer

Several, sometimes conflicting images of the consumer exist in law. At one end of the spectrum is the concept of the “vulnerable consumer” and this correlates with the most paternalistic approaches. It is seen in Nordic consumer law. Moving along the spectrum is the “weak consumer”, a passive glancer, seen in German law (“*flüchtiger verbraucher*”),<sup>95</sup> who is unaware of their rights and choices. Measures taken embodying this image sometimes go beyond what would be considered proportionate often to the point of becoming a measure equivalent to a quantitative restriction on trade within the meaning of the TEC, as happened in *Cassis de Dijon*. Then there is the other end of the spectrum where the ECJ’s image of the consumer is located: “the reasonably circumspect consumer” or “responsible consumer” which equates to the *consommateur moyen* (average consumer) in French civil law.<sup>96</sup> This consumer actively seeks out information in order to better exercise their freedom of choice. They are expected to be able to read in several languages<sup>97</sup> and to be able to understand the information provided. The fact that some consumers may be incapable of reading or understanding the information where provided or are simply passive in the exercise of their choices and thus suffer as a consequence is a small price to pay for the overall benefits brought to the consumer by the integration of the market<sup>98</sup>.

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<sup>95</sup> See the *Scanner Advertising Case*, December 20<sup>th</sup>, 2001 1 ZR 215/98, cited by Reilly, N., “The Unfair Commercial Practices Directive and the Average Consumer” (2005) 12 (5) *Commercial Law Practitioner* 125, at p. 126.

<sup>96</sup> In Directive 2005/29/EC [2005] OJL 149/22, the term “average consumer” is used, defined in recital 11 as someone who is “reasonably well-informed reasonably observant and circumspect”. See Reilly, *supra*.

<sup>97</sup> *ASBL Piageme & Others v. Peeters* (C-85/94) [1995] ECR 2955, para.13, *Geffroy* (C-366/98) [2000] ECR I 6579 (*c.f.* [1992] OJ C 94/217 at p.210). The decision has been criticised: see Schulz, *op cit*, p.214 and *Goerres* (C-385/96) [1998] ECR I-443.

<sup>98</sup> See Peekmens, “Consumer Interests in the EC Competition Regime: An Economic Perspective” in Goyens, M., (ed.), *EC Competition Policy and the Consumer Interest*, (Cabay, Louvain-la-Neuve, 1985), pp.22-67 *c.f.* Piper H., “The Effects of the EC Single Market on Germany’s Unfair Competition Law” in Micklitz and Weatherill, *European Economic Law*, (Dartmouth, Aldershot, 1997), pp.276-278.



Between these two ends of the spectrum one finds the confident consumer which, as Miklitz notes, is “an academic effort to bridge the gap between the opposing concepts and to establish a degree of protection in between the responsible and the weak consumer”.<sup>99</sup> The confident consumer has more protection than the reasonable circumspect consumer but is considered more active and capable of understanding than the weak or vulnerable consumer. It is submitted that given the international flavour to contracts for space carriage, the image of the consumer as seen in the jurisprudence of the ECJ sets too high a threshold for transparency to adequately protect space passengers. While the weak/vulnerable consumer images will provide extensive protection, the approach may be too paternalistic to be adopted into the space law of domestic legal regimes that traditionally have a robust attitude to freedom of contract<sup>100</sup>. Ideally the confident consumer, representing as it does the equilibrium of all the different approaches, is to be preferred as the image of the consumer behind a space carriage contract.

#### **4.6 Consumer Rights in Community Law**

The right to information is protected in a number of ways in different directives (e.g. labelling) and provides for transparency in the pre-contractual phase.<sup>101</sup> Such measures operate with a minimum of trespass upon the freedom to contract as it does not interfere with either the content or form of the negotiations or contract. As Weatherill observes:

Viewed in their most favourable light, they yield a more efficient market by promoting negotiation and informed consumer choice, without substituting public decision-making about the contents of contracts for private choice.<sup>102</sup>

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<sup>99</sup> Micklitz, *supra*, pp.160-161. See Weatherill, “The Evolution of European Consumer Law and Policy: From Well-Informed Consumer to Confident Consumer” in Micklitz, Hans (ed.), *Rechtseinheit oder Rechtsvielfalt in Europa? Zur Rolle und Funktion des Verbraucherrechts in der EG und den MOE-Staaten* (Schriftenreihe des Vereinigten Instituts für Europäisches Wirtschafts und Verbraucherrecht Band. 1, 1996), 423ss.

<sup>100</sup> For example, see the approach in *L'Estrange v. Graucob* [1934] All ER 16 *c.f.* *George Mitchell Ltd., v. Finney Lock Seeds Ltd.* [1983] 1 QB 296 and *McCord v ESB* [1980] ILRM 163 (SC).

<sup>101</sup> Weatherill, *EC Consumer Law and Policy*, pp.60-61.

<sup>102</sup> *Ibid* p. 60.

Information disclosure requirements are seen in the consumer credit directive,<sup>103</sup> the recommendation on the transparency of banking conditions relating to cross-border financial transactions,<sup>104</sup> the directive on cross-border credit transfers<sup>105</sup> and the package holidays directive. Such requirements interact to support other consumer rights. However it is accepted that there may be times when the provision of information is just insufficient to adequately protect consumer rights<sup>106</sup>. Such measures fail “to address substantive unfairness” especially where created by an economic imbalance in the contractual environment and may be inadequate to effectively safeguard consumer rights to health and safety.

In such cases more intrusive measures may be taken. On one level, the failure to provide particular information, such as the identity of a liable party, may result in liability being imposed on the non-disclosing party instead as seen in the products liability directive. On the other hand products failing to meet the safety standards (where established) may not be permitted on to the market, such as meats with unsafe levels of veterinary medicine residues. Admittedly, EU law is lagging behind in the services area, in comparison to the protection of the consumer in the field of goods,<sup>107</sup> with only a few sectors such as financial services and package holidays having been made the subject of consumer-orientated legislation. Rights of redress have been protected through the harmonisation of producer liability. A proposal for a sister directive on services<sup>108</sup> was withdrawn in favour of this sectoral approach, the result of which lead to the package holiday directive.

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<sup>103</sup> Directive 87/102/EC [1987] OJ L42/48, as amended.

<sup>104</sup> Rec. 90/109 [1990] OJ L67/39

<sup>105</sup> Directive 97/5/EC

<sup>106</sup> [1975] OJ C 92/.

<sup>107</sup> For example, there is no equivalent directive for services for Directive 1999/44/EC [1999] OJL 171/12.

<sup>108</sup> COM (90) 482 final - SYN308 – [1991] OJ C 12/8.

## 4.7 The Unfair Terms Directive

The Unfair Terms directive was adopted unanimously by the Council after a gestation period of some six years.<sup>109</sup> The Directive aimed to approximate the laws of the Member States relating to unfair terms in contracts concluded between a seller of goods or supplier of services and a consumer. The existence of a public interest element in rendering unenforceable unfair terms was accepted.<sup>110</sup> A consumer is defined widely in article 2 as “any natural person who, in contracts covered by this Directive, is acting for purposes which are outside his trade, business or profession”.<sup>111</sup> Sellers are also defined widely as “any natural or legal person who, in contracts covered by this Directive, is acting for purposes relating to his trade, business or profession, whether publicly owned or privately owned”. A term is to “be regarded as unfair if, contrary to the requirement of good faith, it causes a significant imbalance in the parties' rights and obligations arising under the contract, to the detriment of the consumer.”<sup>112</sup> This only applies to terms that are not individually negotiated, that is, to standard form clauses.<sup>113</sup>

Under article 4, the unfairness of the contract is to be assessed by taking into account the nature of the goods and services and all circumstances attending the contract at the time of the contract's conclusion. Under Art.5, all terms in written contracts must always be drafted in “plain, intelligible language” and, in cases of doubt, the interpretation most favourable to the consumer prevails. This encapsulates the principle of transparency. This principle is of some value as there is no right to know

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<sup>109</sup> Beginning with COM(84)55 final (Supplement 1/84 of the Bulletin of the European Communities). See also COM(90)322 final, OJ C 243, 28.9.1990.

<sup>110</sup> See the comments of the Advocate General in *Océano Grupo Editorial, S.A. and Salvat Editores, S.A. v Rocío Murciano Quintero et al.* (Joined Cases C-240/98 to C-244/98) [2000] ECR I 4941.

<sup>111</sup> See Wilhelmsson, Thomas, “The Scope of the Directive: Non-Negotiated Terms in Consumer Contracts,” pp.93-95 and p.102 in *Proceedings of the Conference on Unfair Terms Directive: Five Years Later Evaluation and Perspective*, 1-3<sup>rd</sup> July 1999.

<sup>112</sup> Art.3 of the Directive. See Roppo, Vincenzo, “The Definition of Unfairness: The Application of Art. 3(1), 4(1) and the Annexes of the Directive”, pp. 132-143 in *Proceedings of the Conference on Unfair Terms Directive: Five Years Later Evaluation and Perspective*, 1-3<sup>rd</sup> July 1999.

<sup>113</sup> Art.2(2) provides that a “term shall always be regarded as not individually negotiated where it has been drafted in advance and the consumer has therefore not been able to influence the substance of the term, particularly in the context of a pre-formulated standard contract”.

in advance the contractual terms conferred by the directive. Although the Council was in favour of such a right, the matter was considered to be outside the framework of the directive. Unfair terms are not binding upon the consumer but the contract will continue to bind the parties if it can survive in the absence of the unfair terms. The annex to the directive provides a list of terms that are regarded as unfair. Of particular note are terms which have the object or effect of:

- (a) excluding or limiting the legal liability of a seller or supplier in the event of the death of a consumer or personal injury to the latter resulting from an act or omission of that seller or supplier.

While the scope of the directive in Art.1 is expressed to exclude those contractual terms that reflect mandatory statutory or regulatory provisions and the provisions or principles of international conventions to which the Member States or the Community are party, particularly in the transport area, the absence of any convention governing liability for private space carriage at present means this exclusion cannot be relied on for space carriage contracts where they are subject to the jurisdiction of a Member State.

This directive provides a useful insight into how consumer protection can be integrated into domestic space law regimes attempting to regulate private space carriage and offer a contrasting approach to those regimes that have already attempted to deal with the subject. Provisions requiring terms to be in clear and intelligible language are particularly important in the early phases of space carriage industry when the scientific vocabulary explaining the risks has still to enter common parlance. The ban on binding exclusion clauses serves to ensure a high level of consumer protection and would be a necessary element of any space carriage convention attempting to place financial caps on the extent of liability.

#### **4.8 The Directive on Liability for Defective Products**

Directive 85/375/EEC<sup>114</sup> imposes strict (but not absolute) liability on the producer of goods (Art.1). This Directive applies to all movables “even if incorporated into

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<sup>114</sup> OJL 210/29, 7.8.1985 as amended by Directive 1999/34/EC OJL 141/20, 4.6.1999. Transposed in Ireland in the Products Liability Act 1991.

another movable or into an immovable” (Art.2). “Producer” is defined widely to apply to “the manufacturer of a finished product, the producer of any raw material or the manufacturer of a component part and any person who, by putting his name, trade mark or other distinguishing feature on the product presents himself as its producer.” (Art.3 (1)). Under Art.3(2) importers are deemed to be producers and responsible as a such. Where a producer cannot be identified, the supplier is treated as such “unless he informs the injured person, within a reasonable time, of the identity of the producer or of the person who supplied him with the product.” The burden of proving the injury rests on the injured party (Art.4). Art. 6 furnished the definition of a defective product as one which does “not provide the safety which a person is entitled to expect”, taking all circumstances into account, including:

- (a) the presentation of the product;
- (b) the use to which it could reasonably be expected that the product would be put;
- (c) the time when the product was put into circulation.

Art.7 provides for several producer defences including a state of the art defence. There is no reduction in liability where the damage was the result of both the defect and the act or omission of a third party,<sup>115</sup> though it may be reduced or disallowed where the damage was the fault of the injured party or a person for whom the injured party was responsible.

A limitation period of three years runs from the date on which the plaintiff became aware or should reasonably have become aware of the damage, defect and identity of the producer.<sup>116</sup> However, all rights conferred by the directive expire on the passing of ten years from the date on which the product was put into circulation unless proceedings commenced before that date. Liability under the directive cannot be limited or excluded by a provision limiting or exempting him from liability.<sup>117</sup> However, the Directive does “not affect any rights which an injured person may have

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<sup>115</sup> Art. 8.

<sup>116</sup> Art.10.

<sup>117</sup> Art.12.

according to the rules of the law of contractual or non-contractual liability or a special liability system existing at the moment when this Directive is notified.”<sup>118</sup> nor does it apply to damage arising from nuclear accidents *and* covered by a ratified international convention. A Member State may provide for a liability cap of not less than 70m ECUs for a producer’s total liability for death and personal injury (but not for property) caused by the same defect in identical products. The directive applies prospectively only.

There is nothing in the directive that would indicate that it would not apply to the producers, importers or, where relevant, the suppliers of defective space products, including space vehicles and their component parts, in the Community. This directive has the greatest amount of relevance and applicability for earth-based space tourism activities and space-related products sold within the E.U.

#### **4.9 The Distance-Selling Directive**

The distance-selling directive<sup>119</sup> applies to contracts for goods or services made using a means of distance communication, such as e-mail, fax, videophone, catalogue etc. Article 3(2) states that articles 4-7(1) do not apply to, *inter alia*, contracts for the provision of accommodation, transport or leisure services where the supplier undertakes to provide the services on a specific date or within a specific period. So space carriage contracts formulated within the Community will probably not come within the scope of the directive. Art.4 sets down the basic prior information such as the identity of the supplier, the main characteristics of the service, the cost (inc. taxes) and the existence of a right of withdrawal, which is to be provided in “a clear and comprehensible manner... with due regard ...to the principles of good faith” Art.5 provides that the consumer is to receive written confirmation of the information set out in Art.4 and information on the withdrawal and complaints procedures during the performance of the contract. However, this is not applicable where the contract is for a service to be supplied only once and invoiced by the operator through distance

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<sup>118</sup> Art.13.

<sup>119</sup> As amended by Directive 2002/65/EC [1997] OJ L144/19.

communication. Nonetheless, the consumer is entitled to know the geographical address of the supplier.

Article 6 provides for a right of withdrawal for the consumer within seven working days without penalty or reason, provided performance has not yet begun within the seven days with the consumer's consent. Under Art.12 the consumer may not waive the rights conferred by the Directive, nor does the consumer lose the protection of it by virtue of the choice of the law of a non-member country as the law applicable to the contract if the latter has a close connection to the territory of one or more Member states. Similarly in the Doorstep Selling Directive<sup>120</sup> there is a detailed right of cancellation furnished to the consumer that cannot be waived (Art.6).

#### **4.10 The Package Holidays Directive<sup>121</sup>**

While some consumers may chose to arrange a space tour direct from the space carrier, others may chose to contract with a space tour operator who organises a complete package or travel agent that sells space tour packages. There has been no explicit regulation of space tourist operators. Retailers and organizers of space tour package, such as Space Adventures will soon see a growth in the market with the prediction of suborbital space tours commencing at the end of the decade and therefore the need for regulation will soon be no longer a theoretical matter. The application of the Directive 90/314/EEC on Package Travel, Package Holidays and Package Tours would fill such a void.<sup>122</sup> The definitions set out by the directive will be examined, specifically what is meant by a 'package' and an 'organizer', as will the scope of the obligations it imposes on operators and the impact this will have for space tour operators.

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<sup>120</sup> [1985] OJ L 372/31.

<sup>121</sup> See Leden and Shears, *Consumer Law*, (4<sup>th</sup> ed., Pitman, London, 1996), ch.10 and McDonald, "Revisiting Organiser Liability under the Package Travel Directive" [2003] *International Travel Law Journal* 131.

<sup>122</sup> See generally, O'Brien Z.N. "Duties and Liabilities of Space Tourist Operators" (2007) 50 *Proc. Coll L.Out. Sp.* 194.

The directive as proposed by the Commission<sup>123</sup> in cooperation of the European Parliament in order to resolve the ‘disparities’ of Member State practices which were viewed as an obstacle to the internal market.<sup>124</sup> In addition, it was accepted that tourism “plays an increasingly important role in the economies of the Member States” and that the package system is “a fundamental part of tourism”.<sup>125</sup> The freedom to provide tourist services is protected under Articles 43 and 49 of the Treaty (ex Articles 52 and 59) as confirmed by the European Court of Justice (ECJ) in *André Ambry* case.<sup>126</sup>

The Commission also considered that the package travel industry would grow and increase productivity “if at least a minimum of common rules were adopted”, benefiting not only the Community but its citizens as well as serving to “attract tourists from outside the Community seeking the advantages of guaranteed standards in packages”.<sup>127</sup> The directive only sets down the minimal level of consumer protection and regulation. Member States may adopt more stringent measures to protect the consumer, if they see fit.<sup>128</sup> Space tour operators are advised to refer to the transposing instrument in the relevant Member State to ensure they comply with the principles of the national law.

#### 4.10.1 Definition of a Package

For the purposes of the directive, a package is defined in Art.2(1) as “the pre-arranged combination of not fewer than two of the following when sold or offered for sale at an inclusive price and when the service covers a period of more than twenty-four hours or includes overnight accommodation: (a) transport; (b)

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<sup>123</sup> O.J. No. C 96, 12.4.1988, p.5.

<sup>124</sup> Council Directive 90/314/EEC, clause 2.

<sup>125</sup> See generally Zahd, “The Package Travel Directive” in Yaqub and Bedford, Becket (eds), *European Travel Law* (John Wiley & Sons, Chichester, 1997), pp.47-72.

<sup>126</sup> *Criminal Proceedings v André Ambry* (Case 410/96) [1998] ECR I-7875. See also *Graziana Luisi and Guiseppa Carbone v Ministero del Tesoro* (Case C-26/83) [1984] ECR 377; [1985] 3 CMLR 52. See Guyot, Cedric and Dyson, Helen, “Review of European Union Case Law in the Field of Tourism” [2004] *International Travel Law Journal* 199, at pp.201-202.

<sup>127</sup> Directive 90/314/EEC, clause 7.

<sup>128</sup> *Ibid*, Article 8.



accommodation; (c) other tourist services not ancillary to transport or accommodation and accounting for a significant proportion of the package.” Separate billing of the components will not allow the organiser to escape the obligations of the directive.<sup>129</sup>

#### 4.10.1.1 'Pre-Arranged'

The meaning of 'pre-arranged' was examined in *Club Tour v Garrido*,<sup>130</sup> where the ECJ concluded that 'pre-arranged' elements were those that were chosen by the consumer prior to the conclusion of the contract.<sup>131</sup> In *Leitner v TUI*,<sup>132</sup> the ECJ held that there was nothing preventing a holiday that was specifically tailored to a consumer from coming within this definition where the other elements were present.

#### 4.10.1.2 'Inclusive'

A price will be found to be 'inclusive' even if it does not cover all the elements that the consumer in fact obtained.<sup>133</sup> A 'flight only' package would appear to fall outside the scope of the directive.

#### 4.10.1.3 'Transport'

An additional issue is whether the space carriage element will be considered within transport, rather than as a separate element. Applying a cycling holiday by analogy, the cycle does not qualify as transport, but a tourist service even if the cycle is a means of transport.<sup>134</sup> Thus in the case of a space tour package, the space vehicle, although a means of transport, it is more likely to be viewed as a tourist service, and advertised as such. However, flights to and from the launch site or accommodation will satisfy the transport element.

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<sup>129</sup> Kendall, Vivienne, *EC Consumer Law* (Wiley Chancery, London, 1994), p.131.

<sup>130</sup> Case C-400/00 [2002] ECR I-4051.

<sup>131</sup> See Mason, David and Grant, Stephen, *Holiday Law*, 3<sup>rd</sup> ed., (Thomson Sweet and Maxwell, London, 2003), pp.34-39.

<sup>132</sup> Case C-168/00 [2002] ECR I-2631.

<sup>133</sup> See Mason and Grant, *Holiday Law*, *supra*, p.42.

<sup>134</sup> See Mason and Grant, *Holiday Law*, *supra*, p.46.

#### 4.10.1.4 'Accommodation'

As to accommodation, Mason and Grant correctly observe that there is no need for this element to take up a significant portion of the package; duration is therefore irrelevant.<sup>135</sup> The Trading Standards Institute requires 'accommodation' to be more than a facility ancillary to other aspects of the arrangements.<sup>136</sup> It is conceivable that where a space tour operator provides not only the overnight accommodation at or near the launch site, the transport to the launch site, training location or place of accommodation or where the service lasts over twenty-four hours two of the main elements to the package will be met.

#### 4.10.1.5 'Other Tourist Service'

The remaining question is whether the provision of space tourism, either travelling to through or from space or, in the future, a celestial body, will be sufficient to meet the third element. The central issue is whether the space tourism element can be seen to account for a *significant* portion of the package ("une part significative dans le forfait" in the French text). It is submitted that it would be. Mason and Grant observe that:

Significance can be measured in a number of ways – by the proportion of the price, by the proportion of time spent on it or perhaps in cases where it costs little and is over quickly, by the importance attached to it.<sup>137</sup>

On the three tests above, a space tour to LEO lasting a few hours from departure to landing would probably be the most expensive component of the tour and though by proportion take less time, it has the greatest importance, both objectively and subjectively. The question of what was a significant portion was examined in *AFS*

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<sup>135</sup> See the Advocate General's opinion in *AFS Intercultural Programmes Finland* (Case 237/97) [1999] ECR I- 0825.

<sup>136</sup> UK DTI, Guidelines endorsing the Institute's view, quoted by Mason and Grant, *Holiday Law*, *supra*, p.44.

<sup>137</sup> Mason and Grant, *Holiday Law*, *supra*, p.51.

*Intercultural Programmes Finland*.<sup>138</sup> Here a non-profit making organisation arranged student exchanges, including transport to the host country, a stay with a host family (free of charge) and schooling. The Court found that while the transport element had been met, the stay with the host family could not be regarded as accommodation nor could this and the schooling amount to a tourist service. The selection of the school was not a tourist service aiming instead at the education of the students. Selection of the host family was considered an ancillary service. It also held that the preparation of documentation for the stay could be considered to be covered by the concept of other services; it did not take up a significant proportion of the package.<sup>139</sup> Thus education is not a *tourist* service.<sup>140</sup> Saggerson contends that ‘other tourist services’ ‘will be judged qualitatively as well as quantitatively’ on this point.<sup>141</sup> He observes:

It refers to services which are of more than minimal or incidental or casual importance to the purpose of the trip and to those services which might extend or over an identifiable period. In this context, *significant*, it is submitted does not mean *substantial*. Any judgment should involve both the time the service takes in the context of the package of the whole, and the relative importance of the service when set in the context of the particular package...<sup>142</sup>

The UK Department of Trade and Industry has stated on this point that:

‘Other tourist services’ would form a significant part of the package if their presence or absence determined the nature of the holiday.<sup>143</sup>

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<sup>138</sup> Case 237/97 [1999] ECR I- 0825. See Guyot and Dyson, *supra*, p.210, Mason and Grant, *supra*, pp.47-48.

<sup>139</sup> *Ibid*, para 34.

<sup>140</sup> See Robinson, M., “Who is a Tourist? Issues Arising from the Package Travel Regulations” [1995] *TLJ* 77.

<sup>141</sup> Saggerson, Alan, *Travel: Law and Litigation*, (XPL, Hertfordshire, 2004), p.33.

<sup>142</sup> *Ibid*, p. 31.

<sup>143</sup> Quoted in Grant, David and Mason, Stephen, *The EC Directive on Package Travel, Package Holidays and Package Tours* (Travel Law Centre, University of Northumbria, 1993), p.9.

However, it distinguishes between facilities rather than services, a facility being open to all patrons rather than just the consumers of the package. Saggerson views the test as an objective one, limiting the consumer's own personal view to that of evidential importance, rather than being conclusive.<sup>144</sup> On the other hand, a supplier would have some difficulty refuting a claim that a particular feature that is particularly well-promoted in the pre-contractual advertising was not a service.<sup>145</sup> Where a service has been 'individually identified, promoted or advertised by a supplier,'<sup>146</sup> it may be viewed as qualitatively significant.<sup>147</sup>

The ECJ has held that it is not necessary for the consumer to pay entirely for the holiday. In *Rechberger and Greindl*,<sup>148</sup> the plaintiffs availed of an advertised offer in a newspaper requiring them to pay only airport tax and a single-room supplement if travelling alone. The tour operator became insolvent. The Court held that the criteria for a package holiday had been met. The plaintiffs had been exposed to the risk of the organizer's insolvency; the lack of full payment on their part was not material. Therefore, where a company advertises a special offer including a space tourism element, the consumer will still gain the protection of the directive.

#### 4.10.2 *The Parties to the Contract*

An 'organizer' is defined as "the person who, other than occasionally, organizes packages and sells or offers them for sale, whether directly or through a retailer"<sup>149</sup> while a retailer is defined as "the person who sells or offers for sale the package put together by the organizer".<sup>150</sup> These definitions are wide enough to cover space tour

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<sup>144</sup> Ibid.

<sup>145</sup> Ibid.

<sup>146</sup> Ibid.

<sup>147</sup> Ibid, p.32.

<sup>148</sup> *W. Rechberger and Renate Greindl v Republic of Austria* (Case 140/97) [1999] ECR I-3499. See Guyot and Dyson, *supra*, pp.207-208.

<sup>149</sup> Council Directive 90/324/EEC Article 2(2).

<sup>150</sup> Ibid, Article 2(3). See Grant and Mason, *The EC Directive, supra*, pp.9-10.

operators and travel agents that sell space tour packages. A consumer is widely defined by the directive to include “the person who takes or agrees to take the package ('the principal contractor'), or any person on whose behalf the principal contractor agrees to purchase the package ('the other beneficiaries') or any person to whom the principal contractor or any of the other beneficiaries transfers the package ('the transferee)’”. Clearly, consumers are not then limited to Community citizens, thus fulfilling the objective as set down in perambulatory clause 7. This definition is also wide enough to cover those consumers that are not simply travelling for leisure, including business travellers.

#### *4.10.3 Obligations of Operators*

Operators have obligations imposed under the Directive pre-contractually and post-contractually. Post-contractual obligations extend to both pre- and post-departure.

##### *4.10.3.1 Pre-Contractual Responsibility*

The directive provides that “any descriptive matter concerning a package supplied by the organizer or the retailer to the consumer, the price of the package and any other conditions applying to the contract must not contain any misleading information.”<sup>151</sup> This prohibition on misleading information coupled with the provisions of the Misleading Advertising directive,<sup>152</sup> ensure that prospective space tourists are not misled at all pre-contractual stages. Space tour operators must guard against making misleading claims in the brochures. Article 3(2) requires any brochures furnished to the consumer to indicate in a “legible, comprehensible and accurate manner” both the price and adequate information concerning, *inter alia*, the destination, the type of

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<sup>151</sup> Ibid, Article 3(1). Tour operators may be exposed to civil liability in respect of misleading information under national law, for example, Regulation 4 of the UK’s Package Travel, Package Holidays and Package Tours Regulations 1992. See Nelson-Jones, John and Stewart, Peter, *A Practical Guide to Package Holiday Law and Contracts*, 3<sup>rd</sup> ed., (Tolley, Surrey, 1993), p.21.

<sup>152</sup> Council Directive 84/450/EEC of 10 September 1984 relating to the approximation of the laws, regulations and administrative provisions of the Member States concerning misleading advertising OJ No L 250/17, 19.9.1984.

accommodation, its location, category or degree of comfort and its main features, its approval and tourist classification under the rules of the host Member State concerned, the meal plan, the itinerary, general information on passport and visa requirements for nationals of the Member State or States concerned and health formalities required for the journey and the stay and either the monetary amount or the percentage of the price which is to be paid on account, and the time-table for payment of the balance. The organizer or retailer is bound by the particulars contained in the brochure save where changes in such particulars have been clearly communicated to the consumer before conclusion of the contract and is expressly stated in the brochure or where the parties agree to any change subsequently made.<sup>153</sup> These provisions, like those prohibiting misleading information, safeguard the consumer's right to information. Further safeguards are provided in Article 4 which requires the organizer and/or the retailer to provide the consumer, either in writing or any other appropriate form, with general information on passport and visa requirements applicable to nationals of the Member State(s) and in particular on the periods for obtaining them, as well as with information on the health formalities required for the journey and the stay prior to the conclusion of the contract. It is unlikely that space tour operators would have difficulty meeting their pre-contractual responsibilities, although the health formalities may be more onerous for space tourists.

#### *4.10.3.2 Pre-Departure Obligations*

Article 4 imposes additional obligations on organizers regarding the provision of information to the consumer. In good time before departure, the operator and/or retailer must provide the consumer, in writing or any other appropriate form, with information such as the times and places of intermediate stops, and transport connections as well as details of the place to be occupied by the traveller, the name, address and telephone number of the organizer's and/or retailer's local representative or, failing that, of local agencies on whose assistance a consumer in difficulty could call (or where no such representatives or agencies exist, with an emergency telephone number or any other information that will enable him/her to contract the

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<sup>153</sup> Ibid.

organizer and/or the retailer) and information on the optional conclusion of an insurance policy to cover the cost of cancellation by the consumer or the cost of assistance, including repatriation, in the event of accident or illness.

#### 4.10.3.3 Post-Departure Obligations

The directive also imposes obligations on Member States. They must ensure that certain principles apply to package contracts. Failure to transpose will render the State liable to individuals following *Frankovich*.<sup>154</sup> Where the directive is correctly transposed, the national law will require the terms of the contract to be set out in writing or such other form as is comprehensible and accessible to the consumer and must be communicated to him/her before the conclusion of the contract. The consumer must be given a copy of the terms.

The consumer, where prevented from proceeding with the package, must be able to transfer his/her booking to a person who satisfies all the conditions applicable to the package, following reasonable notice of this intention to the organizer or the retailer before departure. Space tour operators need not be concerned therefore where the package is transferred that the transferor would be unable to meet the safety or age requirements set out in the initial package. Both the transferor of the package and the transferee remain jointly and severally liable to the organizer or retailer party to the contract for payment of the balance due and for any additional costs arising from such transfer.<sup>155</sup>

Member States' national laws must ensure that the prices laid down in the contract are not be subject to revision unless the contract expressly provides for the possibility and states precisely how the revised price is to be calculated. Such variations are only allowed for transportation costs, dues, taxes or fees chargeable for certain services, such as landing taxes or embarkation or disembarkation fees at ports and airports and

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<sup>154</sup> *Erich Dillenköfer v Federal Republic of Germany* (Case 174/94) [1996] ECR I-4845; *Frankovich v Italy* [1991] ECR I-5357 (Joined Cases 6/90 and 9/90); [1992] IRLR 84. See Guyot and Dyson, *supra*, pp.206-207.

<sup>155</sup> *Ibid*, Article 4(3).

the exchange rates applied to the particular package. But no increases may be made within the twenty days prior to departure. Where the organizer alters the essential terms, such as price, he must notify the consumer as soon as possible and the consumer may withdraw from the contract or accept a rider specifying the alterations made and their impact on the price.

If the consumer elects to withdraw for this reason, or if, for whatever cause, other than the fault of the consumer, the organizer cancels the package before the agreed date of departure, the consumer is entitled to be repaid or accept another package and a partial refund if the substituted package is of a lower value. The consumer may have a right to compensation in such a case for non-performance of the contract from the organizer/retailer unless the cancellation is on the grounds that the number of persons enrolled for the package is less than the minimum number required and the consumer is informed of the cancellation, in writing, within the period indicated in the package description or on the grounds of *force majeure*. This is defined with the directive as “unusual and unforeseeable circumstances beyond the control of the party by whom it is pleaded, the consequences of which could not have been avoided even if all due care had been exercised.”

Under Article 4(7) of the directive, where, after departure, a significant proportion of the services contracted for is not provided or the organizer perceives that he will be unable to procure a significant proportion of the services to be provided, the organizer must make suitable alternative arrangements, at no extra cost to the consumer, for the continuation of the package, and where appropriate compensate the consumer for the difference between the services offered and those supplied. The obligation to find a suitable alternative may be quite a heavy burden to meet where a space carrier is unable to fulfil its obligations. An alternative carrier may simply be unavailable or unable to meet the requirements of the package. As such the amount of compensation may be a reasonably high percentage of the cost of the overall package given that the cost of space carriage, at least in the initial phases of the space tour industry, will most likely be the mostly expensive component of the package. Where the organizer cannot make such arrangements or these are not accepted by the consumer for good reasons, the organizer must, where appropriate, provide the consumer, at no extra cost, with equivalent transport back to the place of departure,



or to another return-point to which the consumer has agreed. They must also compensate the consumer where appropriate.

#### 4.10.4 Financial Obligations

Article 7 of the directive requires the organizer and/or retailer party to “provide sufficient evidence of security for the refund of money paid over and for the repatriation of the consumer in the event of insolvency.” Clearly this protects the consumer against the costs of the organizer’s and/or retailer’s insolvency but as the perambulatory clauses reveal, this measure was also viewed as benefiting the package travel industry. The directive does not define what will constitute ‘sufficient evidence’ for this purpose. Transposing instruments provide the means by which the organizer/retailer may provide the required evidence. The Commission advocated compulsory insurance and the creation of guarantee funds, which already existed in some states (Ireland, Denmark, the Netherlands and the United Kingdom).<sup>156</sup> Under the Irish Package Holidays and Travel Trade Act 1995,<sup>157</sup> a package provider is deemed to have sufficient evidence of a refund where the package is one in respect of which the provider is required to hold a licence, where an approved body of which the provider is a member enters into a bond with an authorised institution or where the provider has insurance policy under which the insurer agrees to indemnify the consumer. The production by space tour operator, of a copy of their bond or insurance policy would probably be sufficient although to ensure that this would in fact be sufficient to refund all space tourists would most likely require an examination of the books.<sup>158</sup> The requirements for financial security on space tour operators are particularly beneficial to space tourists as the sums involved are significantly higher than average due to the space carriage element.

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<sup>156</sup> See Yaqub, *supra*, p.56.

<sup>157</sup> No. 17 of 1995.

<sup>158</sup> See Nelson-Jones and Stewart, *supra*, pp.68-69.

#### 4.10.5 Liability for Damages

Under Article 5, Member States must take the necessary steps to ensure that the organizer and/or retailer party to the contract is liable to the consumer for the proper performance of the obligations arising from the contract, regardless of whether such obligations are to be performed by that organizer and/or retailer or by other suppliers of services, without prejudice to the right of the organizer and/or retailer to pursue those other suppliers of services. The organizer/retailer will not be liable however where the failure to perform or improper performance is attributable neither to any fault of theirs nor to that of another supplier of services because it is attributable to the consumer, a third party unconnected with the provision of the services contracted for, and are unforeseeable or unavoidable, *force majeure* (as defined above) or to an event which the organizer and/or retailer or the supplier of services, even with all due care, could not foresee or forestall. The organizer and/or retailer must provide prompt assistance in such cases save where the failure is due to the consumer. The consumer must, of course, inform the organizer and/or retailer of any failure in writing. Significantly, Member States are free to allow clauses permitting reasonable limitations on compensation within the contract in the case of damage *other* than personal injury resulting from the non-performance or improper performance of the services arises. Ireland, for example, permits clauses limiting the amount of compensation, except where limits are already in place by virtue of an international convention, although clauses excluding liability for non-performance are not permitted.<sup>159</sup> The United Kingdom's transposing instrument also imposes an outright ban on the inclusion of a clause excluding liability.<sup>160</sup> Space tour operators should check the transposing instrument in the relevant Member State to confirm whether such limitation is permissible. Member States may also permit limitations to all forms of damage in accordance with international conventions, although this is currently a moot point with no such convention in place.

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<sup>159</sup> Package Holidays and Travel Trade Act 1995, section 20(3) and (5).

<sup>160</sup> Package Travel, Package Holidays and Package Tours Regulations (SI 1992/3288), Regulation 15(5). See *Lathrope v Kuoni Travel Ltd.* [1999] C.L.Y. 1381. See generally, Grant, and Mason, *Holiday Law*, *supra*, pp.212 *et seq.* and Mason and Grant, *The EC Directive*, *supra*, p.48

#### 4.10.5.1 *Leitner v TUI* <sup>161</sup>

This case concerned damages for non-material damages. The Leitner family booked a package holiday in Turkey. All meals were consumed at the club where they stayed. One week into the vacation, Simone Leitner displayed symptoms of salmonella poisoning. Her parents tended to her for the remainder of the holiday. A letter of complaint was sent to TUI but no response was received. The plaintiffs then brought an action for the physical pain and suffering as well as for non-material injury, namely the loss of enjoyment of the holiday. The plaintiffs were successful on their first claim but the Austrian Court dismissed the latter. However, the ECJ had a different view. Given the purpose of the directive to harmonise the laws of different Member states and the existence in some Member States but not in others of an obligation to provide compensation for non-material damage would cause significant distortions of competition. The Court also added that “compensation for non-material damage arising from the loss of enjoyment of the holiday is of particular importance to consumers.”<sup>162</sup> Thus the Court concluded that:

Article 5 of the directive is to be interpreted as conferring, in principle, on consumers a right to compensation for non-material damage resulting from the non-performance or improper performance of the services constituting a package holiday.<sup>163</sup>

Space tour operators are therefore exposed to liability for damages for non-material damage, including loss of enjoyment of the space tour by virtue of Article 5 where correctly transposed by the Member State. Consumers have this as a right but this is only of particular significance in Member States, as was the case with Austria, which

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<sup>161</sup> Case C-168/00 [2002] ECR I-2631. See generally Wiewiórowska-Domagalska, A., Arnokouros, G., Dickie, J. and Loos, M. B.M., “ECJ, 12 March 2002, Case C-168/00 *Leitner v TUI Deutschland GmbH & Co. KG* - Compensation for non-material damage under the directive on Package Travel”, (2003)11(1) *European Review of Private Law* pp. 91-102 and Roth, W.H., “Case *Simon Leitner v TUI Deutschland GmbH & Co. KG*” (2003) 40(4) *Common Market Law Review* 937-951.

<sup>162</sup>Case C-168/00, para.22.

<sup>163</sup> Ibid, para. 24.

did not recognise such a head of damages in contract. Other Member States, such as the Republic of Ireland<sup>164</sup> and the United Kingdom, already have such heads of damages.<sup>165</sup> Such an approach is reasonable<sup>166</sup> even without the Community aspect as the underlying purpose of the holiday contract, viz, to “provide a degree of peace of mind and freedom from vexation – even where the holiday in question involves strenuous activity” accordingly damages should be available for the loss of enjoyment or disappointment.<sup>167</sup>

#### 4.11 Advertising Law<sup>168</sup>

While advertising is highly subjective, it is important that consumers receive correct, accurate and objective information regarding goods and services. This is vital where a new service enters into the market, especially one that is attendant with high risk. It will be essential for the private space tourism sector when the industry develops and the market expands. Advertising has a direct effect on the establishment and the functioning of the common market by causing, *inter alia*, distortions in competition. The increase of cross-frontier advertising also increases the desirability of harmonisation as discrepancies may disrupt intra-Community trade.<sup>169</sup> The second programme of the EEC for a consumer protection and information strategy provided

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<sup>164</sup> See *Johnson v Longleat Properties (Dublin) Ltd* (Unreported, High Court, 19 May, 1976 and noted in (1978)13 *Irish Jurist* 186); *O’Keefe v. Ryanair Holdings plc* [2002] IEHC 154 (19 June 2002); *Dinnegan v. Ryan* [2002] IEHC 55 (13 May 2002); *Carroll v. Bus Atha Cliath/Dublin Bus* [2005] IEHC 278 (4 August 2005), para.12. See generally Buttimore, Jonathan, *Holiday Law in Ireland*, (Blackhall Publishing, Dublin, 1998).

<sup>165</sup> See *Jarvis v Swan Tours* [1973] Q.B. 233; *Jackson v Horizon Holidays* [1975] 1 W.L.R. 1468, *Askew v Intasun North* [1980] CLY 637, *Levine v Metropolitan Travel* [1980] CLY 638, *Bragg v Yugotours* [1982] CLY 777 and *Hunt v Hourmont* [1983] CLY 983. See Saggerson, *supra*, pp.244-252.

<sup>166</sup> For a different view see Mason, Stephen, “Damages for Distress and Disappointment – Why Us?” [2001] *International Travel Law Journal* 8 (on the Advocate General’s opinion in *Leitner*).

<sup>167</sup> Saggerson, *supra*, p.245. Footnotes omitted.

<sup>168</sup> See O’Brien, Z.N., “Advertising of Private Commercial Space Services in the European Community” (2006) 49 *Proc Coll on the Law of Outer Space* I.10.

<sup>169</sup> See generally, Mortelmans, K., “Minimum Harmonization and Consumer Law,” [1988] *ECLJ* 2.

for appropriate action to be taken in the field of misleading advertising.<sup>170</sup> Council Directive 84/450/EEC of 10 September 1984 relating to the approximation of the laws, regulations and administrative provisions of the Member States concerning misleading advertising<sup>171</sup> was subsequently passed.

Directive 84/450 notes that advertising “affects the economic welfare of consumers” whether it induces a contract or not. The purpose of the Directive is “to protect consumers, persons carrying on a trade or business or practising a craft or profession and the interests of the public in general against misleading advertising and the unfair consequences thereof” (Art.1).<sup>172</sup> Recipients of space services, such as space tourists, would constitute such consumers and would therefore have their economic welfare expressly protected in a way that does not occur within national space laws, such as the Commercial Space Launch Amendments Act 2004. While the latter Act safeguards the physical safety of space flight participants, their economic welfare is only indirectly protected insofar as the Act provides for extensive pre-disclosure of space flight risks prior to the receipt of any compensation. Furthermore, the requirement for a waiver, applicable, under the Commercial Space Launch Act 1984 (CSLAA),<sup>173</sup> to space flight participants arguably protects the economic welfare of the emerging private commercial space flight industry more than that of individual consumers.

#### *4.11.1 Application of Directive 84/450 to Space Services*

Directive 84/450 applies to advertising of space service providers operating within the Community. It establishes conditions for determining whether an advertisement is misleading. In doing so, it ensures a minimal level of protection for the consumer’s right to information, even if that information is not impartial, at the inducement stage, rather than prior to the exchange of consideration. This requirement for the provision of information is also safeguarded by the CSLAA but not at the

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<sup>170</sup> OJ No C 133, 3. 6. 1981, p. 1.

<sup>171</sup> OJ No L 250, 19.9.1984, p.17.

<sup>172</sup> Kendall, *supra*, ch.7.

<sup>173</sup> The Commercial Space Launch Act 1984 (US), s.70112(b).

inducement stage. Art.2 defines advertising as “the making of a representation in any form in connection with a trade, business, craft or profession in order to promote the supply of goods or *services*, including immovable property, rights and obligations”. All three constituents must be present for the announcement to constitute an advertisement.<sup>174</sup> Misleading advertising is defined as “any advertising which in any way, including its presentation, deceives or is likely to deceive the persons to whom it is addressed or whom it reaches and which, by reason of its deceptive nature, is likely to affect their economic behaviour or which, for those reasons, injures or is likely to injure a competitor.” It is clear that the advertising of private commercial space services within the Community will fall within the scope of the directive.

In determining whether advertising is misleading, the directive requires that account be taken of all its features noting in particular any information concerning the characteristics of the services, such as their availability, nature, execution, composition and material features of tests or checks carried, the price (or the manner in which the price is calculated), the conditions on which the services are provided and the nature, attributes and rights of the advertiser.<sup>175</sup> The requirement to take account the results and material features of tests and checks on the service is of particular benefit in protecting the interests of space consumers by restricting misleading claims regarding the safety of the space activity in question. Where a space service provider has included certain claims regarding the tests conducted on their space vehicle and its general safety features etc., they may be required by the courts of Member States to provide factual evidence to support the accuracy of those claims.

#### *4.11.1.1 Implementation of the Directive*

The Directive leaves a degree of flexibility to Member States in the level of protection afforded to the consumer, which may be above that set out by the measure

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<sup>174</sup> *Dunnes Stores v Mandate* [1996] 1 ILRM 384; [1996] E.L.R. 56 (Irish Supreme Court applying the definition of advertising in Council Directive 84/450/EEC as incorporated into Irish law by the European Communities (Misleading Advertising) Regulations 1988 (SI No. 134 of 1988)).

<sup>175</sup> Art.4. The attributed of the advertiser include his identity and assets, his qualifications and ownership of industrial, commercial or intellectual property rights or his awards and distinctions.

itself. However, as the ECJ noted, it “should be remembered, however, that that power must be exercised in a way that is consistent with the fundamental principle of the free movement of goods, as expressed in the prohibition contained in Art.28 EC on quantitative restrictions on imports and any measures having equivalent effect between Member States.”<sup>176</sup>

The definition of misleading advertising is not uniform throughout the Community. In England, advertising is misleading ‘if it conveys a false impression to an average reasonable viewer of the advertisement... there must be a reasonable probability of confusion being caused by the advertisement, and not just an abstract risk’.<sup>177</sup> In Belgium omissions of essential characteristics will also amount to misleading advertising.<sup>178</sup> In France, pictorial representations may amount to misleading statements.<sup>179</sup> In Greece, false statements that misled can result in imprisonment for up to six months, a fine or both.<sup>180</sup> In Ireland, persons are forbidden from publishing advertisements which are likely to mislead and cause loss, damage or injury to members of the public to a material degree.<sup>181</sup> However, Spanish law only prohibits advertising that causes an error resulting in economic action or omission or that may or does damage a competitor. Ohly points out two additional questions, first whether the deception is to be determined as a purely factual matter or as a normative one<sup>182</sup> and second, the actual number of consumers who need to be deceived for the advertisement to be construed as misleading, both of which have received varied responses before the national courts and the ECJ.<sup>183</sup> Furthermore, additional

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<sup>176</sup> Para.34 *Herbert Karner Industrie-Auktionen GmbH v Troostwijk GmbH*. (Case C-71/02) [2004] ECR I-3025. See also *Commission v France* (Case C-23/99) [2000] ECR I-7653, paragraph 33.

<sup>177</sup> Crown, Giles, *op cit*, p.2. Both literal and implied meanings must be considered; all persons likely to see the advertisement must be taken into consideration, including persons of low intelligence or limited means

<sup>178</sup> Art.23 of the Trade Practices Act.

<sup>179</sup> Cass. Crim. De Mars 4, 1976, Bull. Crim. 199.

<sup>180</sup> Peri Athemitou Antagonismou, Art.3.

<sup>181</sup> Sale of Goods and Supply of Services Act 1980 (IR) s.8.

<sup>182</sup> Olivier, Peter, *Free Movement of Goods in the European Community*, 4<sup>th</sup> ed., (Sweet and Maxwell, London, 2003), para. 8.146. See *Estée Lauder Cosmetics GmbH & Co. OHG v Lancaster Group GmbH* (Case C-220/98) [2000] ECR I-0117.

<sup>183</sup> Ohly, Ansgar and Spence, Michael, *The Law of Comparative Advertising: Directive 97/55/EC in the United Kingdom and Germany* (Hart Publishing, Oxford, 2000), pp. 61-65.

obligations may have to be met under national law. France imposes ‘an absolute obligation of truthfulness for advertising of every kind’.<sup>184</sup> In England, the Trade Descriptions Act 1968 prohibits any person in the course of their trade or business from making a statement which s/he knows to be false, or recklessly make a statement which he knows to be false, including statements concerning the examination, approval or evaluation of any services, accommodation or facilities.<sup>185</sup> Germany, Austria, Belgium and Italy have fairly strict regimes.<sup>186</sup> Advertisers of space services should refer in each case to national law to ensure full compliance with any additional requirements.

#### 4.11.2 Comparative Advertising

Directive 97/55/EC of 6 October 1997,<sup>187</sup> to include comparative advertising,<sup>188</sup> was borne out of a need to create a uniform provisions governing the form and content of comparative advertising in the interest of the internal market and the consumer’s right to information. The Directive also protects the economic welfare of space consumers in assisting them in choosing amongst competitors. This protection is, of course, only advantageous where there are multiply space service providers operating within the market. Art.2 inserts a new Art.2a into Directive 84/450 which provides a definition of comparative advertising, viz, “any advertising which explicitly or by

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<sup>184</sup> Art. L. 121.1 CdC.

<sup>185</sup> S.14.

<sup>186</sup> For example: Austria: Gesetz gegen den unlauteren Wettbewerb BGBl 1988 No.422; Zugaben gesetz BGBl 1971 II No.196; Gesetz über Preisnachlässe; (Rabattgesetz) RGBI 1933 I 1011; Mediengesetz; Belgium: Wet betreffende de handelspraktijken en de voorlichting en bescherming van de consument, Luxembourg: Law of November 27, 1986 on Unfair Competition, Denmark: Marketing Practices Act, Finland: Kuluttajansuojalaki; Laki sopimattomasta menettelystä elinkeinotoiminnassa, France: Art.121.1 CdC, Germany: Gesetz gegen den unläutereren Wettbewerb, Greece: Peri Athemitou Antagonismou 146/1914, the Netherlands: Gedragsregelen voor het Reclamewezen, Portugal: Lei de Defesa do Consumidor Law 29/81 of August 21, 1981.

<sup>187</sup> As amended by Directive 84/450/EEC. See Ohly, *supra*.

<sup>188</sup> On the implementation, see generally, *Report from the Commission to the European Parliament on Consumer Complaints in Respect of Distance Selling and Comparative Advertising*, Brussels 10.3.2000, COM (2000)127 final, p.28 *et seq.*



implication identifies a competitor or goods or services offered by a competitor.”<sup>189</sup> Thus where space service providers resort to comparative advertising, as a weapon against their competitor the provisions of the directive, as incorporated into national law, will be engaged. Art.3a of the amended Directive provides exhaustively<sup>190</sup> the cumulative conditions<sup>191</sup> under which a comparative advertisement is permitted. These include that it is not misleading, that it compares goods/services meeting the same need; that it objectively compares one or more material, relevant, verifiable and representative features of those goods/services, that it does not create confusion in the market place between the advertiser and a competitor or between their trade marks, trade names or other distinguishing marks; that it does not discredit or denigrate the trade marks etc nor take unfair advantage of the reputation of a trade mark *etc.* of a competitor and that it does not present services as imitations or replicas of goods or services bearing a protected trade mark or trade name.

The conditions above have a number of consequences. The second condition only requires that the service meet the same need, rather than being identical, so space hospitality advertising comparing different space vehicles will meet the condition because of their reasonable interchangeability. According to the ECJ’s case law, it may be legitimate to use a competitor’s registered trade mark where necessary to inform the public of the intended purpose of the service offered.<sup>192</sup> Under the Directive, the use of another’s trade mark in comparative advertising will not infringe the Trade Marks Directive<sup>193</sup> as long as it is not unfair, does not denigrate

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<sup>189</sup> *Toshiba Europe* (Case C-112/99) [2001] ECR I-7945, paragraphs 30 and 31. See Kelly, Gerard, “Comparative Advertising – Bringing the Advertising War into the Enemy Camp,” (2005) 12(10) *Commercial Law Practitioner* 281; Carey, “Comparative Advertising – European Harmonisation” [2000] *Ent. L.R.* 21.

<sup>190</sup> See *Pippig Augenoptik GmbH and Co. KG v Hartlauer Handelsgesellschaft mbh.* (Case C-44/01) [2004] E.T.M.R. (5) 65; [2003] ECR I-3095, para. 44.

<sup>191</sup> Recital 11 of the Directive; Spink and Petty, “Comparative Advertising in the European Union” [1998] 47 *I.C.L.Q.* 855, at p.858.

<sup>192</sup> *BMW* (Case C-63/97) [1999] ECR I-905, paras 58-60.

<sup>193</sup> Council Directive 89/104/EEC to approximate the laws of the Member States relating to trade marks [1989] O.J. L40/1. See *Pippig Augenoptik GmbH and Co. KG v Hartlauer Handelsgesellschaft mbh.* (Case C-44/01) [2004] E.T.M.R. (5) 65; [2003] ECR I-3095, paras 49-51.

the competitor's services, nor cause confusion.<sup>194</sup> Denigration, in this context, varies between claiming a competitor's service inferior<sup>195</sup> to depictions as 'generally unsatisfactory'.<sup>196</sup> In addition, as Kelly observes, the third condition "ensures that the test is essentially an objective one. A statement will only be verifiable if the advertiser can provide the respective information upon request."<sup>197</sup> The ECJ has held that these conditions must be interpreted in the sense most favourable to such advertisements.<sup>198</sup> Any such advertising must "indicate in a clear and unequivocal way the date on which the offer ends or, where appropriate, that the special offer is subject to the availability of the goods and services, and, where the special offer has not yet begun, the date of the start of the period during which the special price or other specific conditions shall apply."

Price comparisons have been found not to constitute misleading advertising as they are 'extremely useful to enable the consumer to make his choice in the full knowledge of the facts',<sup>199</sup> nor can they *per se* entail the discrediting or denigration of a competitor's trade mark.<sup>200</sup> The comparator has economic freedom in selecting which prices to compare.<sup>201</sup> A "failure to mention a better known brand name in a comparative advertisement would be contrary to the Directive if the omission significantly [affected] a consumer's choice." However, selecting the most favourable comparisons to be drawn is not contrary to the Directive as consumers reasonably expect this.

Puffery is permitted.<sup>202</sup> In assessing if an advertisement violates the terms of the directive, the court will take account of its overall presentation and the target

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<sup>194</sup> Recital 15 of the Directive. See Ohly, pp.52-55.

<sup>195</sup> By analogy to *Testpreis-Angebot* BGH GRUR 1998, 824.

<sup>196</sup> U.K. Radio Authority's Advertising and Sponsorship Code RAC 9. See Ohly, pp.80-81.

<sup>197</sup> Kelly, *op cit.*

<sup>198</sup> *Toshiba Europe GmbH v Katun Germany GmbH*. (Case C-112/99) [2002] F.S.R. 39, para.38.

<sup>199</sup> *Scutzverband gegen Unwesen in de Wirtschaft eV v. Yves Rocher GmbH* (C-126/91) [1991] 3 ECR I-2361.

<sup>200</sup> *Pippig Augenoptik GmbH and Co. KG v Hartlauer Handelsgesellschaft mbh*. (Case C-44/01) [2004] E.T.M.R. (5) 65, [2003] ECR I-3095.

<sup>201</sup> *Id.*, para 49.

<sup>202</sup> *Erven Warnink BV v J. Townend and Sons (Hull) Ltd.* [1979] A.C. 731.

consumer group. In the case of a specific group of consumers with specialist knowledge, the probability of violating the directive is lower. For space tourism providers, this means that the expansion of the target consumer group beyond the limited numbers of the pioneer stage of development will affect the nature of their comparative advertising insofar as a determination may be made as to whether it infringes the directive or not. It may also be possible for space service competitors to raise other challenges against comparative advertisements based in copyright law or in tort, for example, malicious falsehood<sup>203</sup> or passing off.<sup>204</sup>

The amended Directive does not preclude voluntary controls on misleading or comparative advertising through the use of self-regulatory codes (Art.5) nor does it prevent Member States from taking measures that provides more extensive measures of protection for consumers in the case of misleading advertising (Art.7). However, while the Directive sets out only a minimum standard, “stricter national provisions on protection against misleading advertising cannot be applied to comparative advertising as regards the form and content of the comparison.”<sup>205</sup> Therefore, any national measure regulating the form and content of comparative advertising will be assessed in light of the Directive and not Art.28.<sup>206</sup> Many Member States have such additional self-regulation in advertising. Member States may maintain bans on comparative advertising in the case of certain vulnerable categories of consumers or for the advertising of professional groups, although no current limitations exist for space consumers.

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<sup>203</sup> See *Vodafone Group PLC v Orange Personal Communications Services Ltd.* [1997] FSR 34 where Jacob J. observed that to succeed Vodafone had to show: ‘(1) the word complained of where false (2) they were published maliciously; and (3) they were calculated to cause the plaintiff pecuniary damage.’

<sup>204</sup> See Kelly, *op cit.*

<sup>205</sup> *Pippig Augenoptik GmbH and Co. KG v Hartlauer Handelsgesellschaft mbh.* (Case C-44/01) [2004] E.T.M.R. (5) 65; [2003] ECR I-3095, para.44.

<sup>206</sup> *Parfümerie-Fabrik 4711*(Case C-150/88) [1989] ECR 3891, paragraph 28, *Vanacker and Lesage* (Case C-37/92) [1993] ECR I-4947, paragraph 9, and *DaimlerChrysler*(Case C-324/99) [2001] ECR I-9897, paragraph 32.

#### 4.11.3 Actions Against Misleading and Comparative Advertisers

Member States must ensure that adequate and effective means exist for the control of misleading advertising or unpermitted comparative advertising, including legal provisions “under which persons or organizations regarded under national law as having a legitimate interest in prohibiting misleading advertising” may take legal action or bring the matter before a competent administrative authority. The Court /administrative body is empowered under the directive to order the cessation of, or to institute appropriate legal proceedings for an order for the cessation of, misleading advertising, or to order the prohibition of, or to institute appropriate legal proceedings for an order for the prohibition of the publication of an advertisement where this had not yet occurred but is imminent without proof of actual loss or damage or of intention or negligence on the part of the advertiser. Actions for an injunction may also be brought by qualified entities, such as consumer organisations, as provided for by Directive 98/27/EEC.<sup>207</sup> The measures taken may also amount to unfair commercial practices under Directive 2002/65/EC which includes misleading and comparative advertising as such.<sup>208</sup>

#### 4.11.4 Other Directives<sup>209</sup>

The directive on the coordination of certain provisions laid down by law, regulation, or administrative action in Member States concerning the pursuit of television broadcasting activities<sup>210</sup> as amended is also of interest for space tourism operators. Television advertising is defined as ‘any form of announcement broadcast whether in return for payment or for similar consideration or broadcast for self-promotional purposes by a public or private undertaking in connection with a trade, business, craft or profession in order to promote the supply of goods’ and therefore will encompass

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<sup>207</sup> OJ No.L166, 11.6.1998, p.51.

<sup>208</sup> See generally, Reilly, N., “The Unfair Commercial Practices Directive and the Average Consumer” (2005) 12 (5) *Commercial Law Practitioner* 125.

<sup>209</sup> Schotthöfer, Peter and Maxeiner, James R., “European Union”, in Maxeiner and Schotthöfer, *op cit*, p. 557 *et seq.*

<sup>210</sup> Directive 89/552/EEC as amended. See Crown, Giles), *supra*, p.108 *et seq.*

the advertisement of space services. It must be 'readily recognizable' as such and kept separate from other parts of the programme service. Art.10 prohibits both surreptitious and subliminal advertising.<sup>211</sup> Art.12 provides that television advertising must not prejudice respect for human dignity, include any discrimination on the grounds of race, sex or nationality, be offensive to religious or political beliefs or encourage behaviour prejudicial to health or to safety or the protection of the environment. It must not cause physical detriment to minors (Art.16). The Directive does not prohibit a Member State from taking general measures in the interest of consumer protection from misleading advertising as long as the retransmission of advertisements from another Member State is not prohibited and no secondary control applies to such advertisements.<sup>212</sup>

The Distance Contracts directive<sup>213</sup> also has a bearing on advertising where done through the telephone and facsimile machines. Art.10(1) prohibits the use of automatic calling systems without human intervention without the prior consent of the consumer. Where space service providers resort to direct mail advertising that leads to a contract, this will also be regulated by the Distance Contracts directive. Consumers under such contracts are given a seven-day cooling-off period with a right of withdrawal. This right to withdraw as well as the identity of the supplier, the main characteristics of the service and the cost (inc. taxes) should be provided in a clear and comprehensible manner but this is not applicable where the contract is for a service to be supplied only once and invoiced by the operator through distance communication. The consumer is entitled to know the geographical address of the supplier and has a non-waivable right of cancellation. Those consumers that do not wish to receive direct mail advertising must be removed from the mailing list under Art.8 of Directive 9/46/EC.

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<sup>211</sup> Surreptitious advertising as defined in Art.1(c).

<sup>212</sup> *Konsumentombudsmannen v De Agostini (Svenska) Forlag AB* [1997] All ER (EC) 697.

<sup>213</sup> Directive 97/7/EC as amended by Directive 2002/65/EC [1997] OJ L144/19.

The Package Holidays Directive<sup>214</sup> also prohibits misleading advertising and requires that the price be clearly disclosed. Additional details relating to the package holiday such as the transportation, accommodation and visa and passport requirements must be provided.

#### 4.11.5 Minimal Standards and National Laws

Member States may have their own national laws governing that impose additional limitations, for example in advertising. Cold-calling is also another area without uniformity with outright bans operating in Germany to countries with no specific legislation (Spain). The law on promotional gifts also varies among states. Germany restricts promotional gifts;<sup>215</sup> in France, this is banned unless identical to the service sold or if of low value.<sup>216</sup> Promotional gifts are permitted in Ireland<sup>217</sup> and subject to only a few limitations in the Netherlands. Again, as above, reference should be made to the law in which the advertisement is made in order to ensure compliance.

#### 4.11.6 Challenging National Advertising Legislation

National legislation that restricts or prohibits certain forms of advertising may limit the volume of imports by affecting the marketing opportunities for the imported service and amount to a measure equivalent to a quantitative restriction thus contravening Art.28 (ex.30) of the Treaty of Rome.<sup>218</sup> However, while Art.28 is applicable to commercial communications, it is also limited by the *Keck* proviso<sup>219</sup> which permits certain selling arrangements provided they apply to all relevant traders

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<sup>214</sup> Directive 90/314/EEC on package travel, package holidays and package tours (OJ L 158 of June 23<sup>rd</sup> 1990, pp. 59-64). See Saggeron A., *Travel Law and Litigation*, 2<sup>nd</sup> ed. (CLT Professional Publishing, 2000), ch. 1 and Buttimore J, *Holiday Law in Ireland*, 1992.

<sup>215</sup> Zugabeverordnung.

<sup>216</sup> Decree Law (Ordonnance) of December 18, 1986.

<sup>217</sup> Code of Advertising Standards for Ireland, para. B (8).

<sup>218</sup> *Re Oosthoek's Uitgeversmaatschappij* (C-286/81) [1982] 4 ECR 4575.

<sup>219</sup> Reich, 'The November Revolution of the European Court of Justice: *Keck*, Meng and Audi Revisited' (1994) 31 *CMLRev* 459, Maduro, " *Keck*: The End? The Beginning of the End? Or just the End of the Beginning?" (1994) 3 *IJEL* 30; Travers, Noel J., "The *Keck* Legacy," (1995) 13 *ILT* 39.

within the national area and affect them all equally in law and in fact.<sup>220</sup> This approach was adopted by the ECJ in the advertising field.<sup>221</sup> If the measure taken is not discriminatory, the national court will be left to decide if the measure is necessary in order to meet the overriding requirement of general public importance or one of the Art.36 aims and the test of proportionality.

Restrictions on advertising in national law may also be challenged directly by space service providers as a restriction on the freedom to provide services within the Community as prohibited in Art.49 (ex.59) of the Treaty as occurred in *Bond van Adverteerders v The Netherlands*<sup>222</sup> where the ECJ held that the Kableregeling in question discriminated against broadcasters established in other Member States by prohibiting them from advertising on their station intended for the Dutch public. Most restrictions imposed on the basis of residence have been held by the ECJ to operate contrary to Art.49.<sup>223</sup> However, it is essential that there is some inter-state element; the ECJ have held that “the provisions of the Treaty on the freedom to provide services cannot be applied to activities whose relevant elements are confined to a single Member State.”<sup>224</sup> But where the prospective consumer moves between Member States before the completion of the contract, the matter will cease to be solely internal<sup>225</sup>. The focus is arguably ‘on the mobility and availability of the service in question rather than emphasising the person.’<sup>226</sup> Art.49 covers both discriminatory and non-discriminatory restrictions in the same fashion as the free movement of goods under Art.28 following the *Cassis de Dijon* jurisprudence

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<sup>220</sup> *Re Keck and Mithouard* (C-267 and 268/91) [1993] 7 ECR I-6097; [1995] 1 CMLR 101; *Hünermund and Others* (Case C-292/92) [1993] ECR I-6787, paragraphs 21 and 22; *Tankstation 't Heukske and Boermans* (Joined Cases C-401/92 and C-402/92) [1994] I-2199, paragraphs 12 to 14.

<sup>221</sup> *Konsumentombudsmannen v De Agostini (Svenska) Forlag AB* [1997] All ER (EC) 697; *Herbert Karner Industrie-Auktionen GmbH v Troostwijk GmbH*. (C-71/02) [2004] ECR I-3025; *Lucien Ortscheit GmbH v Eurim-Pharm Arzneimittel GmbH* (C-320/93) [1994] ECR I-5243 and *Commission v France* (C-152/78) [1980] ECR 2299.

<sup>222</sup> (C-352/85 [1988] 2 ECR 2085 ; [1989] 3 CMLR 147.

<sup>223</sup> *Clean Car Autoservice v Landeshauptmann von Wien* (C-350/96) [1998] ECR I-2521; *Ciola v. Land Vorarlberg* (C- 224/97) [1999] ECR I-2517.

<sup>224</sup> *Procureur du Roi v. Debauvée* (C-52/79) [1980] ECR 833, para. 9.

<sup>225</sup> *Société Générale Alsacienne de Banque S.A. v. Koestler* (C-15/78) [1978] ECR 1971.

<sup>226</sup> Craig and De Búrca, p.805.

because “[t]here might be a variety of restrictions in different Member States, none of them intrinsically justified, which collectively might wholly frustrate the aims of [Art.49] and render impossible the attainment of a single market in services.”<sup>227</sup>

Where a challenge is made to a discriminatory restriction, Member States may be able to justify the restriction within the exemptions provided in Art.49, as amended by the Treaty of Amsterdam, viz public policy, security or health. Economic aims do not constitute grounds of public policy.<sup>228</sup> In addition, such restrictions may also be objectively justified by reference to certain ‘imperative requirements’. The ECJ set down the requirements in *Van Binbergen*.<sup>229</sup> First, the restriction in national law must pursue a legitimate public interest which is not at variance with the objectives of the Community, a determination of which is to be made by the national court.<sup>230</sup> Public interest objectives include the protection of workers,<sup>231</sup> consumers,<sup>232</sup> intellectual property<sup>233</sup> and fair trading. Second, the restriction must be equally applicable to all persons on undertakings operating within the particular Member State and be applied without discrimination.<sup>234</sup> Third, the measure must be proportionate to its aim, i.e. it must be an appropriate means of attaining the aim and no less restrictive measure must be available. If the restriction duplicates a condition in the Member State where the provider of the service is established, thus imposing a double burden, it will not be found to meet the test of proportionality.<sup>235</sup> Finally, the restriction must respect fundamental rights, particularly freedom of expression as embodied in Art.10(1) of

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<sup>227</sup> *Säger v. Dennemeyer* (C-76/90) [1991] ECR I-4221 per Advocate General Jacobs.

<sup>228</sup> (Case 352/85) *Bond van Adverteerders* [1988] ECR 2085, para 34.

<sup>229</sup> *Van Binsbergen v. Bestuur van de Bedrijfsvereniging voor de Metaalnijverheid* (C-33/74) [1974] ECR 1299.

<sup>230</sup> *Finalarte Sociedade Construcao Civil v. Urlaubs- und Lohnausgleichskasse der Bauwirtschaft* (C-49/98) [2001] ECR I-7831.

<sup>231</sup> *Re Alfred John Webb* (C-279/80) [1981] ECR 3305; *Seco SA and Desquenne and Giral SA v Etablissement d'Assurance contre la Vieillesse et l'Invalidité* (C-62-63/81) [1982] 1 ECR 223.

<sup>232</sup> *Commission v France* (C-220/83) [1986] 4 ECR 3663.

<sup>233</sup> *SA Compagnie Générale pour la Diffusion de la Télévision Coditel and Others* (C-6/9) [1980] ECR 881.

<sup>234</sup> *Criminal Proceedings against Webb* (C- 279/80) [1981] ECR 3305, para.17. See also *Ministère Public v. Van Wesemael* (C-110-111/78) [1979] ECR 35.

<sup>235</sup> *Criminal Proceedings against Webb* [(C- 279/80)1981] ECR 3305.



the European Convention on Human Rights<sup>236</sup> and Art.19 of the UN International Covenant on Civil and Political Rights.<sup>237</sup> Where these conditions are satisfied, the restriction will be upheld.

The approach to non-discriminatory restrictions may be seen in *Alpine Investments*<sup>238</sup> where a Dutch measure prohibiting unsolicited commercial calls was found to constitute a restriction although it was a general measure that did not seek to provide an advantage to the national market. It was not analogous to measures taken in *Keck*. The provision affected not only offers made by the provider of services to the addresses established in the Netherlands or those who moved there to receive services but also offers made to potential recipients in another Member State directly affecting access to the market and hindering intra-Community trade.<sup>239</sup>

Where a national measure relates to both the free movement of goods under Art.28 and freedom to provide services under Art.49, the Court will, in principle, “examine it in relation to one only of those two fundamental freedoms if it appears that, in the circumstances of the case, one of them is entirely secondary in relation to the other and may be considered together with it.”<sup>240</sup> In the event that the dissemination of advertising is not an end in itself, but a secondary element in relation to the sale, the free movement of goods aspect will prevail over the freedom to provide services

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<sup>236</sup> *Gropper Radio AG and Others v. Switzerland* Series A No. 173 of 28.3.10 (ECtHR); *Elleniki Radiophonia Tilèorassi AE v. Dimotiki Etaireia Pliroforissis and Sotiros Kouvelas* (C-260/89) [1991] ECR I-2925 and *Herbert Karner Industrie-Auktionen GmbH v Troostwijk GmbH*. (C-71/02) [2004] ECR I-3025, para.48-52.

<sup>237</sup> *Nold KG v. Baustoffgroßhandlung v Commission* (C-4/73) [1974] 1 ECR 491; [1974] 2 CMLR 338.

<sup>238</sup> (C-384/93) [1995] ECR I-1141. See also Hilson, C., “Discrimination in Community Free Movement Law” (1999) 24 *European Law Review* 445.

<sup>239</sup> *Alpine Investments BV v Minister van Financiën* (C-384/93) [1995] ECR I-1141, paras 36-38.

<sup>240</sup> *Herbert Karner Industrie-Auktionen GmbH v Troostwijk GmbH*. (C-71/02) [2004] ECR I-3025, para.46; *Schindler* (Case C-275/92) [1994] ECR I-1039, paragraph 22 and *Canal Satélite Digital* (Case C-390/99) [2002] ECR I-607, paragraph 31.

aspect. The question should not be viewed in the abstract but in the context of the case.<sup>241</sup>

## 5. Conclusion

There are a number of suggested consumer protection measures that can be taken. Informing the consumer is vital. In requiring *informed* written consent the CSLAA has to a limited extent provided for this. However, operators should be obliged to make disclosure of all material risks in order for the consent to be classified as informed. Information as to the right of redress where the operator fails to uphold their end of the contract should be disclosed. The contract should be ideally in the language of the consumer and should be in plain clear and intelligible language in legible print of a reasonable size<sup>242</sup>. All terms and conditions, including the refund policy, should be disclosed and no term should be imposed after the contract has been formed save by operation of law. Exclusion clauses subject to the Unfair Terms Directive will be invalid. Other terms that may be classified as unfair will also fall prey to the same fate under this directive. Such protection would be very valuable to a space activities consumer and should be integrated into space law regimes. Alternatively, a lesser level of protection could permit exclusion clauses where fair and reasonable and specifically brought to the attention of the consumer.

The right to waive one's rights as conferred under the law is restricted in the Community. Similar restriction on the right to waive should be introduced into domestic space law. Waivers of the rights to information, refund and redress should be deemed null and void. Waivers regarding liability should be restricted to payload for goods rather than for passengers in the case of space carriage operators. However, waivers as to conditions to be fulfilled by the supplier of services under the contract (rather than under statute) by the consumer should still be possible. It is worth bearing in mind that the organiser, as opposed to the licensee/permittee could find

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<sup>241</sup> *Herbert Karner Industrie-Auktionen GmbH v Troostwijk GmbH*. (C-71/02) [2004] ECR I-3025, see the Advocate General's opinion para. 91-93.

<sup>242</sup> See for instance s. 53 of the Sale of Goods and Supply of Services Act 1980.

themselves subject to liability under the Package Holidays Directive where the appropriate conditions are met.

Where any clause is found to be a nullity, the contract should continue to exist where it can survive the severance of the offending clause(s). The burden of proving a term is a nullity should rest of the party asserting it.

Space tour organisers and travel agents selling space tours will need to meet the obligations set out by the Package Holiday directive where their product comes within the directive's definition of a package. Any holiday must combine transport or accommodation with the actual space tour itself. It is submitted that a trip into low earth orbit amounts to a tourist service accounting for a significant portion of the package, given both its importance in any space tour, as its absence would seriously diminish the value of such a holiday both objectively and subjectively and its cost as a percentage of the cost of the rest of the package. Tour operators must not provide misleading information and must provide information relating to itinerary, meals, visas etc. to their customers. They must show sufficient evidence of financial security to protect the space tourist from the risk of the organizer's insolvency. Evidence of insurance policies or bonds should be sufficient, though this will depend on the options set out within municipal law. The space tour organiser will be liable to the space tourist for the proper performance of the contract. The space tourist has a corresponding right to compensation, a right that includes compensation for non-material injury, such as loss of enjoyment and disappointment. No liability will attach to the organiser however where the improper performance is attributable to the space tourist, a third party unconnected with the provision of the services contracted for, and is unforeseeable or unavoidable, *force majeure* or to an event which the organizer and/or retailer or the supplier of services, even with all due care, could not foresee or forestall. In any case, the space tour operator should refer to the relevant municipal law to confirm that it is meeting the principles binding on operators.

A tour operator sells a dream. If he sells a dream he must make it come true. This is fragile; therefore it imposes a great obligation on him to take care.<sup>243</sup>

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<sup>243</sup> *Harris v Torchgrove Ltd.*, Manchester District Registry [1985] CLY 944.

Space tour operators are no exception.

Community advertising law provides protection to consumers by safeguarding their economic welfare and their right to information at the inducement stage. In doing so, advertising law may be seen to protect the interests of space consumers in addition to the protections provided by national space law measures. Space service providers should be aware that their advertisement policies, whether through broadcasting or direct mail, will attract the provisions of a number of directives as incorporated into domestic law as well as additional national measures, such as self-regulating codes. Advertisements should not be misleading. Comparative advertisements are permitted provided they do not create confusion in the market place between the brand names of the advertiser and those of a competitor, discredit or denigrate the brands of a competitor nor take unfair advantage of the reputation of a competitor's brand. The protection afforded in the regulation of comparative commercial space service advertising safeguards the free economic choice of the space consumer, regardless of whether a contract is entered into or not. Courts of Member States are empowered to order the cessation of publication of any advertisement breaching the law. Service providers may challenge unduly restrictive laws under the Treaty of Rome as a restriction on the freedom to provide services under Art.49. Such challenges extend to both discriminatory and non-discriminatory measures, by analogy to the case law on the free movement of goods.

## CHAPTER VII: LIABILITY IN INTERNATIONAL LAW

CHAPTER VII: LIABILITY IN INTERNATIONAL LAW .....	295
Part I: General Liability.....	297
1. Introduction .....	297
2. Regulation of Liability under the <i>Corpus Iuris Spatialis</i> .....	300
2.1 The Scope of Damage .....	301
2.1.1 <i>Psychological Injury</i> .....	302
2.1.2 <i>Moral Damage</i> .....	303
2.1.3 <i>Use or Dissemination of Remote Sensing Data</i> .....	304
2.1.4 <i>Indirect Damage</i> .....	304
2.2 Liability for Damage to the Surface of Earth.....	305
2.3 Liability for Damage to Crafts in Airspace.....	306
2.4 Liability for Damage to Outer Space .....	307
2.5 The Liable Party .....	308
2.5.1 <i>International Intergovernmental Agencies</i> .....	309
2.6 Multiple Liable Parties and Indemnification.....	310
2.8 Claimants under the <i>Corpus Iuris</i> .....	312
2.9 Time Limits .....	313
2.10 Compensation.....	314
2.11 Procedure.....	314
2.12 Convention Interaction with Other Law.....	317
2.13 Difficulties Posed by the Current International Law .....	318
3. Regulation of Liability under General Principles of International Law.....	319
4. <i>Cosmos 954</i> .....	319
4.1 Other Space Object Incidents.....	321
5. Liability for Breach of International Responsibility .....	322
6. Challenges for the Current Regime.....	325
7. Regulating Liability of Private Parties for Damage.....	325
7.1 Liability of Private Parties for Damage to the Surface .....	326
7.2 Liability to Spaceflight Participants.....	331
7.2.1 <i>The Warsaw Convention</i> .....	333
7.2.2 <i>The Montreal Convention</i> .....	338
7.2.3 <i>Warsaw or Montreal Convention for Space Law?</i> .....	339
8. Conclusion.....	346
Part II: Environmental Liability .....	348
9. Introduction .....	348
10. Harm, Damage and Pollution.....	349
10.1 Environmental Harm and Damage.....	349
10.2 Pollution .....	352
10.2.1 <i>Space Debris</i> .....	354
11. Reasons for Regulation of Space as an Environmental Issue .....	357
11.1 <i>Intergenerational Equity</i> .....	358
11.2 <i>Human Health and Safety and Self-Interest Rationales</i> .....	359
11.3 <i>Economic Rationales</i> .....	360
11.4 <i>To Protect the Space Environment on its Own Merits</i> .....	361
12. Level of Regulation.....	363
13. Current Regulation of the Space Environment .....	365
13.1 Substantive Regulation of Environmental Damage .....	366
13.1.1 <i>Regulation of Environmental Damage under the Corpus Iuris</i> .....	366

13.1.1.2 Environmental Damage to the Surface of the Earth and Airspace .....	366
13.1.1.2 Environmental Damage to Outer Space .....	369
13.1.2 Regulation of Environmental Damage under General International Law ..	369
13.1.3 Environmental Principles .....	373
13.1.3.1 The Precautionary Principle.....	373
13.1.3.2 Prevention .....	375
13.1.2.3 Polluter Pays Principle .....	377
13.2.1 Duty to Inform or Notify.....	379
13.2.2 Duty to Consult .....	382
13.2.3 Power to Request a Consultation.....	382
14. Responses to Actual Environmental Damage .....	385
14.1 Compensation and Restitution .....	385
14.2 Remediation .....	388
14.2.1 Remediation and Space Debris .....	389
14.3 The Forum for Disputes .....	390
15. Responses to Anticipated Environmental Damage .....	391
15.1 Prevention and Mitigation.....	391
16. Comparative Responses .....	394
16.1 Addressing Liability for Oil Pollution .....	395
17. Conclusion .....	398

## Part I: General Liability

### 1. Introduction

Part I of this chapter will examine the regulation of liability in international law, with part II examining specifically liability for environmental harm. Liability in international law for space activities is examined under both the *corpus iuris*, specifically the Outer Space Treaty and the Liability Convention as well as under general principles of international law with regard to hazardous activities. The Cosmos 954 incident will also be visited as an example of the operation of international law in the event of damage.<sup>1</sup> The ILC's Draft Articles on Internationally Wrongful Acts, which are of particular interest in assessing the liability of states for space agencies and/or private entities which have separate legal personality are also considered. The theory of liability applicable under the Liability Convention varies

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<sup>1</sup> This is the sole international claim made to date grounded on both general principles and the Liability Convention and arose as a result of the uncontrolled descent and landing of a Russian nuclear-powered space object on to Canadian territory causing damage and occasioning high remedial costs.

with the locus of damage with no fault liability applied to damage on the surface of the earth and to aircraft in flight and fault-based liability applied to damage sustained by a space object<sup>2</sup> to a space object.

The *corpus iuris*, as a creature of international law, regulates liability between and among States and both the regulation of liability at this level and the imposition of responsibility has had a significant impact on the development of national law. This is particularly evident in the licensing procedures, waivers and indemnities in contract and insurance requirements.<sup>3</sup> However, international law with regard to space activities does not require States to regulate liability internally, specifically for private operators of space transportation services, so as to ensure harmonious application across state boundaries and efficient recovery by the injured party. This poses a challenge for both space-activities related commercial relationships and plaintiffs who have no marketplace relationship with any commercial entities. Such entities face uncertain liability towards their own clients as the regulation of risk varies from one state to another even within a single Federation.<sup>4</sup> Furthermore, spaceflight participants as a result of their involvement in the space activity fall outside the scope of the current Liability Convention.<sup>5</sup> Equally there are additional litigation hazards for the plaintiff. Even in the event of a successful claim by their State, they are not entitled to financial recovery and must pursue a claim directly against the private entity with all the attendant private law issues.<sup>6</sup> A further issue arises with regard to the liability of commercial entities for environmental damage; there is no international law requiring the burden for such damage be borne directly by the polluter where there is harmful contamination of earth or pollution to outer space including earth orbit, the Moon and other celestial bodies. Both Treaty and Convention impose liability on the launching State. While the definition of a 'launching state' is wide, it is distinct in meaning to the state of registry<sup>7</sup> and therefore a state may be liable regardless of whether it was, remains or becomes a

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<sup>2</sup> See Ch.II,s.2.1.

<sup>3</sup> See Chapter IV.

<sup>4</sup> Ibid.

<sup>5</sup> By virtue of Article VII(b) of the Liability Convention.

<sup>6</sup> See Chapter II.

<sup>7</sup> See Chapter II.

state of registration. Having a state party or parties held liable provides a degree of certainty, furthermore the potential embrace of the term 'launching state' is so wide that it is highly improbable that no liable state would be found where the space object is identified. It is not suggested that the existing system be replaced but that a parallel system for the regulation of the operator's liability be established. While not all such liability can or should be regulated at this level, it is clear that there are at least three aspects of commercial liability with an international law aspect that merit consideration: first, damage to the surface of the earth or aircraft in flight of a third party by an operator, save where the third party and operator are of the same state; second, damage, injury or loss to a spaceflight participant of one nationality on a space object of a different state's registry; third damage to the environment by private commercial space activities.

In the case of the first aspect, it is suggested that a system similar to that adopted in the Rome Convention of 1952 regulating liability to the surface of the earth arising from the operation of aircraft is a possible parallel system. Although the Rome Convention is not well ratified, it is suggested that a modified system that addresses the difficulties of the Rome Convention system would address the current position of operator's liability at an international level resulting in a harmonious systems among States. In relation to the second aspect, it is suggested that some regulation should exist in relation to space passengers and their carriers or operators. The suggested parallel is again found in air law which is favoured as it provides a practical example of how international law may regulate such carriage and incidents giving rise to liability where jurisdiction is tied to a vessel rather than a territory. It is submitted that the Montreal system is the model to be favoured notwithstanding the lack of financial certainty that may come with having uncapped financial liability as it fits better within the current developments in other areas of law, such as duty of care and consumer law.

In relation to the third aspect, a system applying the polluter-pays theory, would be economically more efficient for recovery. This is examined in Part II. International law is most suitable to regulate pollution to the global commons. An example of such as system is the approach of the International Maritime Organisation to oil pollution, specifically the Civil Liability Convention of 1972 and the 1992 Oil Fund



Convention which applies the polluter-pays theory and allows recovery from a fund. The Fund is established by State parties who then require their operators to pay an amount which is relative to ship's net tonnage under national law. Claims may then be made out of the 1972 Convention or where the claim is excluded under that Convention, under the 1992 Convention. While the commercial space industry requires insurance to proceed, it may be argued that this approach creates unnecessary duplication. However, it is submitted that this may help regularise insurance premiums particularly where, like with oil pollution, the cost of risk actualisation is remarkably high. Indeed, successive failures in the late 1980s crippled the global space insurance industry once, it may indeed be preferable to adopt a parallel system.

All of the responses have one element in common; they require hard law to be adopted. This is in contrast to the current trend in international space law which favours the adoption of soft law recommendations.<sup>8</sup> On this point, it can only be said that the regulation necessary requires a binding element that would render a soft law equivalent ineffective.

## **2. Regulation of Liability under the *Corpus Iuris Spatialis***

Liability is regulated both under the Outer Space Treaty of 1967<sup>9</sup> and under the Liability Convention. The latter specifically provides for the theory of liability applicable which is dependant on the locus of the damage. The discussions on the proposed Liability Convention had led to delays in its conclusion however the damage to a Japanese cargo ship and injury to five of the crew in June of 1989 provided a much-needed impetus to conclude the discussions.<sup>10</sup> The scope of damage is examined first to establish the parameters of potential recovery under the Liability

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<sup>8</sup> See Ch.I, s.3.

<sup>9</sup> See generally, Darwin G., "The Outer Space Treaty" (1967) 42 *BYIL* 278; Andem, M.N. "The 1967 Outer Space Treaty as the Magna Carta of Contemporary Space Law" [2004] 47 *Proc. Coll L.Out. Sp.* 292 and Cheng, B., "The 1967 Space Treaty," (1968) *Journal de Droit International* 532.

<sup>10</sup> See UN Doc. A/AC-105/G2/SR-131 and Diederiks-Verchoor, *An Introduction to Space Law*, 3<sup>rd</sup> ed. (Kluwer Law International, Alphen aan den Rijn, 2008), p. 35.

Convention. Then the various theories of liability applicable to damage when caused to the surface of the earth, to aircraft in flight and in outer space is examined. The liable party, as identified in the *corpus iuris*, will be assessed with an analysis of the term ‘launching state’ as well as the means of minimising liability under the Convention. In this regard, the possibility of seeking indemnities from other States is considered as is the defence of contributory negligence on the part of the claimant State. The permissible claimants under the Convention are investigated which clarifies the position with regard to non-State plaintiffs and space tourists. The compensation available under the Convention, the procedure for making a claim and the interaction of the Convention with other international agreements is then assessed. As the Canadian submissions in the Cosmos claim drew both on the *corpus iuris* and general principles, the discussion of the case and the settlement follows after the brief discussion of the general principles applicable.

## 2.1 The Scope of Damage <sup>11</sup>

Article I of the Liability Convention defines “damage” as “loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations”. The Belgian draft viewed damage as “any loss for which compensation may be claimed under the national law of the injured person”.<sup>12</sup> The definition ultimately adopted is closer in scope to the Hungarian draft which included “loss of life, personal injury or other impairment of health, and damage to property”.<sup>13</sup>

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<sup>11</sup> See Gorove, “The Concept of Damage in the Liability Convention,” in *Studies in Space Law: It's Challenges and Prospects* (Sijthoff, Leyden, 1977), p.123 etc and Hurwitz, Bruce, *State Liability for Outer Space Activities in Accordance with the 1972 Convention in International Liability for Damage Caused by Space Objects* (Kluwer, Dordrecht, 1992), p.12 et seq.

<sup>12</sup> Working Paper on the Unification of Certain Rules Governing Liability For Damage Caused by Space Objects, A/AC/C.2/L.7, [1965] *Yearbook of Air and Space Law* 544, 544.

<sup>13</sup> Original Proposal in A/AC.105/C.2/L.10; [1965] *Yearbook of Air and Space Law* 548, 549. The US proposal included ‘loss of life, personal injury and destruction or loss or damage to, property’: see A/AC.105.C2/L.8 and amended in A/AC.105/C.2/L.8/Rev.1.

### 2.1.1 Psychological Injury

These drafts do not shed any light on what may constitute “an injury or other impairment to health”.<sup>14</sup> The World Health Organisation defines ‘health’ as a “state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”.<sup>15</sup> Thus it appears that recovery for psychological injury may be permitted in international space law, a conclusion that is supported by Christol<sup>16</sup> Hurwitz finds support for this conclusion in the 1974 Nuclear Test Cases where the claims made by Australia and New Zealand were partly based on the psychological stress caused to the affected population.<sup>17</sup> However, this has never been asserted by any State in any claim made under the 1972 Convention to date<sup>18</sup> and so the theory has never been tested. An expansive interpretation would be avoided at an international level where there is a lack of clarity as to whether states did in fact agree to this. While the Additional Convention to the International Convention Concerning the Carriage of Passengers and Luggage by Rail 1966 explicitly allows recovery for passengers who sustain mental injury, the rail industry and the space carriage industry are at two different stages and it is not a case of comparing like with like.

In relation air transport, some courts accepted a narrow reading of ‘lesion corporelle’ in the Warsaw Convention because of its consistency with “the primary purpose of the contracting parties to the Convention: limiting the liability of air carriers in order to foster the growth of the fledgling commercial aviation industry”<sup>19</sup> while others accepted such claims based on the interpretation of the English text. The discernible trend in international air law, however, has been to exclude any question of recovery

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<sup>14</sup> Hurwitz, Bruce, *State Liability for Outer Space Activities in Accordance with the 1972 Convention in International Liability for Damage Caused by Space Objects* (Kluwer, Dordrecht, 1992), p.13.

<sup>15</sup> Constitution of the World Health Organisation, 2 Official Records 100 (1948).

<sup>16</sup> Christol, C.Q., “International Liability for Damage Caused by Space Objects” (1980) 74 *AJIL* 34 and *The Modern International Law of Outer Space* (Pergamon Press, New York, 1982), p.95.

<sup>17</sup> [1974] I.C.J. Rep. 253; Hurwitz, *supra*, p.13.

<sup>18</sup> Cosmos 954. Some three incidents occurred before the LC came into force, see Theraulaz, JD, *Droit de l’Espace et Responsabilité* (Imprimerie Vaudoise, Lausanne, 1971) p.226 *et seq.*

<sup>19</sup> *Eastern Airlines Inc. v. Floyd* 499 U.S. 530; 111 S. Ct. 1489; 113 L. Ed. 2d 569; 1991 U.S. LEXIS 2222; 59 U.S.L.W. 4307; 91 Cal. Daily Op. Service 2740; 91 Daily Journal DAR 4413.

for purely psychological injury in the Montreal Convention 1999. However, the use of the term 'bodily injury' in Warsaw and in Montreal is not seen in the Liability Convention. Therefore, the inclusion of psychological injury would not require an unduly expansive view to be taken of the wording of the Convention and it will probably be found to fall within its scope.

### 2.1.2 Moral Damage

On the question of whether moral damage is included, the U.S. Senate noted that it understood Article VII of the Outer Space Treaty did not cover non-physical damage. Gorove observes:

This would appear to be a sound interpretation of the Outer Space Treaty and there is no provision of the Liability Convention which would conflict with such interpretation.<sup>20</sup>

An earlier proposal during negotiations concerning the Liability Convention by Hungary specifically provided for recovery for moral damage whenever the law of the State liable provided for such damage.<sup>21</sup> The Convention however does not explicitly deal with the question of whether moral damage is included. Foster concludes that claims for moral damage would be permitted under the Convention, despite the difficulties in placing financial values on such injuries.<sup>22</sup> A view supported by the U.S. and Christol.<sup>23</sup> It is probable that moral damage will come within the scope of damage under Art.I.

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<sup>20</sup> Gorove, *supra*, p.125.

<sup>21</sup> UN Doc. A/AC.105/19, Annex II, 26<sup>th</sup> March, 1964. See Christol, *The Modern International Law of Outer Space*, *supra*, p.67.

<sup>22</sup> Foster WF, "The Convention on International Liability for Damage Caused by Space Objects," (1972) 10 *Canadian Yrbk Int'l L* 141.

<sup>23</sup> Christol, *The Modern Law of International Law*, p.99.

### 2.1.3 Use or Dissemination of Remote Sensing Data

In relation to electronic surveillance, it is unlikely that the use or dissemination of data obtained through remote sensing satellites would fall under the Liability Convention as damage is envisaged as being caused *by* a space object. For “[e]ven if property interests were construed to include more than property interests, such as political, security or other national interests damage would not in these cases be done by the space object but by the activities of some persons or organizations subsequent to the survey performed by the satellite.”<sup>24</sup> State practice in the use of remote sensing data indicates that this has been accepted. No case for damage has been brought under the Liability Convention alleging damage from remote sensing satellite activities. A failure to disclose any critical information, such ‘as the imminent threat of volcanic eruptions’<sup>25</sup> may be contrary to the principle and the spirit of co-operation as envisaged in the *corpus iuris* but this is stated to relate to the exploration of outer space rather than the earth. Any damage that did occur would be indirect. This raises the issue of whether indirect damage is within the scope of the Convention.

### 2.1.4 Indirect Damage

Gorove submits that it is improbable that claims for indirect damage would be successful. Hurwitz cites *inter alia* *The Lusitania*,<sup>26</sup> the decision of the US-German Mixed Claim Commission<sup>27</sup> and *Trail Smelter*<sup>28</sup> in support of the proposition for its inclusion.<sup>29</sup> Matte however has included that where there is sufficient causality, the matter may be sent to the claims commission to determine where no agreement can be reached.<sup>30</sup> Haanappel submits that if the costs of the clean-up in the case of the

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<sup>24</sup> Gorove, *supra*, p.126.

<sup>25</sup> Gorove, *supra*, p.126.

<sup>26</sup> (1923) 7 R.I.A.A. 32.

<sup>27</sup> Administrative Decision No.11. (1923) 7 R.I.A.A. 23.

<sup>28</sup> (1939) 33 AJIL 182.

<sup>29</sup> Hurwitz, *supra*, pp.13-15.

<sup>30</sup> Matte, Nicholas, *Aerospace Law* (Sweet and Maxwell, 1997), p.157.

Cosmos 954 incident are viewed as steps taken to mitigate probable damages, then claims for consequential and indirect damages have already been made under the Convention.<sup>31</sup> Christol concludes:

[I]n light of the positions put forward during the negotiations of the Liability Convention, it is clear that no agreement was reached as to ‘direct’ versus ‘indirect’ cause, the term ‘cause’ should only require a causal connection between the accident and the damage.... [I]t may be anticipated that the Convention will be interpreted as covering both direct and indirect damages resulting from the malfunctioning of a space object and its component parts.<sup>32</sup>

The amount to be paid in compensation for any damage is to be determined ‘in accordance with international law and the principles of justice and equity’.<sup>33</sup> Neither nominative nor punitive damages as neither fall within the purpose of the Liability Convention to furnish damages in order to compensate injured States. In the Cosmos 954, the sum of \$3m was accepted as compensation, although this was substantially less than the actual cost of the clean-up.

Having considered the issue of damage, the scope of liability will now be considered. As the scope varies with the theory and the theory varies with the locus of the damage, the theory applicable will be examined in accordance with the locus.

## **2.2 Liability for Damage to the Surface of Earth**

Under Art.VII of the Outer Space Treaty, the launching state is internationally liable for damage to another State Party or to its natural or juridical persons by such object

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<sup>31</sup> Haanapel, PPC, “Some Observations on the Crash of Cosmos 954” (1978) 6 *J. Sp.L* 148.

<sup>32</sup> Christol, *The Modern Law of Outer Space*, p.97

<sup>33</sup> Art. 12 of the Liability Convention.

or its component parts on the Earth. Article II of the Liability Convention<sup>34</sup> develops this further and imposes absolute liability to pay compensation for damage caused by a state's space object on the surface of the earth. Where damage is caused to the surface of earth to a State, or its natural or juridical persons, as a result of two space objects of different launching states doing harm to one another, liability of those launching states is also absolute.<sup>35</sup>

### **2.3 Liability for Damage to Crafts in Airspace**

The theory of liability applicable for damage to craft in airspace depends on the type of activity in which the craft is engaged. Liability for damage to aircraft in flight is absolute under Article II of the Liability Convention. Similarly where damage is caused to an aircraft in flight of a State as a result of two space objects of different launching states doing harm to one another, liability of those launching states is equally absolute.<sup>36</sup> The harm is treated no differently to damage to the surface of the earth. This is so regardless of whether the craft is in supra-adjacent airspace or at 37,000 feet. Therefore all damage to aircraft whether landing, taking-off, in airspace or on the runway is regulated by a strict liability system. The reason for the selection as evidenced from the *travaux préparatoires* is that fault or negligence in these circumstances would be hard to prove.<sup>37</sup>

The Treaty is silent as to damage to spacecraft in flight in airspace. Damage to a spacecraft on the surface of earth would not be distinguished from damage to the surface. Under the wide terms of Article VII of the Outer Space Treaty it is clear that international liability for all damage to natural or juridical persons in air will fall on the launching state. The Liability Convention clarifies this point and provides for

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<sup>34</sup> See Goldman, Nathan, *American Space Law: International and Domestic* (Iowa State University Press, Ames, 1988), p.79 *et seq* and Marcoff, Marco, *Droit International Public de L'Espace* (Éditions Universitaires Fribourg, 1973), p.546 *et seq*.

<sup>35</sup> Article IV of the Liability Convention.

<sup>36</sup> Art.IV(1)(a) of the Liability Convention.

<sup>37</sup> U.K. delegate: [1962] Y.B.U.N. at 45, quoted by Hurwitz, Bruce, *State Liability for Outer Space Activities in Accordance with the 1972 Convention in International Liability for Damage Caused by Space Objects* (Kluwer, Dordrecht, 1992), p.27.

fault based liability for damage to space objects in airspace (“elsewhere than on the surface of the earth”)<sup>38</sup>. However, this is specifically in relation to damage caused *to* a space object *by* a space object. The issue of damage to a space object in airspace caused by an aircraft is not considered by the Liability Convention and may be viewed as coming within the scope of air law, although the reverse is not. Liability is also fault-based in the event of damage to a third state’s space object in airspace caused by a collision from two space objects of different launching states in airspace.<sup>39</sup>

The use of no-fault theory in international law for lawful activities is not usually seen however as space activities are classified as ultra-hazardous it was deemed appropriate.<sup>40</sup>

## **2.4 Liability for Damage to Outer Space**

Article VII of the Outer Space Treaty imposes liability on the launching state for damage to other States, their natural or juridical persons by space objects or their component parts in outer space, including the moon and other celestial bodies.

Article III of the Liability Convention imposes liability “only if the damage is due to its fault or the fault of persons for whom it is responsible.” The possibility of applying strict liability to both loci was discussed as the US favoured it.<sup>41</sup>

Therefore it is fault-based liability that is applicable to damage to space platforms, space stations, lunar bases and satellites whether in LEO or at a Lagrange point. The Liability Convention is silent as to where the procedural burden lies in relation to the proof of fault, though applying general principles the State that asserts fault will bear the burden of proving it.

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<sup>38</sup> Article III of the Liability Convention.

<sup>39</sup> Article IV(1)(b) of the Liability Convention.

<sup>40</sup> See Chapter III for a more in-depth discussion on choice of theory.

<sup>41</sup> See the US Draft Proposal on Liability for Space Vehicle Accidents A/AC.105/C.2/L.4 (4<sup>th</sup> of June 1962) reprinted [1965] *Yearbook of Air & Space Law* 544, at p.553.



## 2.5 The Liable Party

The *corpus iuris* imposes liability directly on the launching state. The *corpus iuris* adopts a four-prong definition<sup>42</sup> that encapsulates that state that launches the object, the state that procures the launch of the space object, the state from whose territory a space object is launched and the state from whose facility a space object is launched.<sup>43</sup> Launching for these purposes includes attempted launch activities<sup>44</sup> though it is disputed if aborted launching fall within the meaning of ‘attempt’.

A State from whose territory or facility a space object is launched is regarded as “a participant in a joint launching”<sup>45</sup> and is therefore subject to joint and several liability along with the other launching states. The breadth of the definition clearly conceives of a situation where there may be more than one launching state. Certainly more than four where there have been multiple states falling into one category,<sup>46</sup> for instance, where multiple states procure another state to launch in a third state’s territory. By incorporating references to both territory and facility, launches from non-territorial or quasi-territory are covered. An example of launches from a facility under the jurisdiction of an entity other than the state in whose territory it is located is the ESA launch facility in French Guiana. An instance of a launch from a facility not within the territory of a particular state includes launches from sea platforms in the High Seas (equally launches from such platforms within the territorial waters of another state would also be covered with both the state exercising jurisdiction over the platform and the state of the territorial waters both considered to be launching states). Indeed, the Sea Launch Consortium, licensed by the US was an example of a private entity that may render the US liable as its national for the launching activities

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<sup>42</sup> See generally Williams, M., “Perceptions on the Definition of a Launching State and Space Debris Risks,” IAF abstracts, 34th COSPAR Scientific Assembly, The Second World Space Congress, held 10-19 October, 2002 in Houston, TX, USA., p.IISL-4-03.

<sup>43</sup> Article VII of the Outer Space Treaty; Article I(c)(i)-(ii) of the Liability Convention.

<sup>44</sup> Article I(b) of the Liability Convention. See Hurwitz, *supra*, pp.18-19.

<sup>45</sup> Article V(3) of the Liability Convention.

<sup>46</sup> See Awford, Ian, “Legal Liability Arriving from Commercial Activities in Outer Space” in Mosteshar, Sa’id (ed.), *Research and Invention in Outer Space, Liability and Property Rights* (Martinus Nijhoff Publishers, Dordrecht, 1995), p.95.

undertaken for third parties.<sup>47</sup> Another instance is the *Luigi Broglio Space Centre* also known as the San Marco Platform, off the coast of Kenya, which was used for Italian and US launches from 1964 to 1988.

### 2.5.1 International Intergovernmental Agencies

As with the Treaty, it is possible for the Liability Convention to bind an international intergovernmental organisation which conducts space activities where the organization declares its acceptance of the rights and obligations provided for in the Convention *and* if a majority of the States members of the organization are States Parties to both the Convention and the Treaty.<sup>48</sup> Steps should be taken by states to ensure that there is a declaration made to this effect made by the organisation in question.<sup>49</sup> As such it is possible to have an organisation liable jointly and severally in the event of damage in the same capacity as for a launching state.<sup>50</sup> However, the claim for compensation in respect of such damage must be first presented to the organization<sup>51</sup> and only where fails to pay within six months, the compensatory sum agreed or determined to be due, may the claimant State invoke the liability of the members which are States Parties to the Convention for the payment of that sum.<sup>52</sup> ESA has accepted the rights and obligations under both the Treaty and the Convention and while it is directly liable for its launching activities, so are its Member States although any Member State found liable may seek indemnification from ESA. In addition both the European Organisation for the Exploitation of

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<sup>47</sup> See generally, Lee, Joosung J., "Legal Analysis of the Sea Launch License: National Security and Environmental Concerns," (2008) 24(2) *Space Policy* 104-112 and Kerrest, A., "Launching Spacecraft from the Sea and the Outer Space Treaty: The Sea Launch Project," (1998) 23 *Ann. Air & Sp. L.* 16. The consortium filed for bankruptcy in June 2009.

<sup>48</sup> Article XXII(1) of the Liability Convention.

<sup>49</sup> Article XXII(2) of the Liability Convention.

<sup>50</sup> Article XXII(3) of the Liability Convention.

<sup>51</sup> Article XXII(3)(a) of the Liability Convention.

<sup>52</sup> Article XXII(3)(b) of the Liability Convention.

Meteorological Satellites and the European Telecommunications Satellite Organization are parties to the Convention but not the Treaty.<sup>53</sup>

## 2.6 Multiple Liable Parties and Indemnification

The Liability Convention provides for the imposition of joint and several liability where multiple States are responsible for damage to a third State party.<sup>54</sup> Whenever two or more States jointly launch a space object, they are jointly and severally liable for any damage caused.<sup>55</sup> In all cases of joint and several liability, the burden of compensation for the damage shall be apportioned between the defendant States in accordance with the extent to which they were at fault;<sup>56</sup> if the extent of the fault of each of these States cannot be established, the burden of compensation must be apportioned equally between them.<sup>57</sup> This parallels the national law approach to apportionment in relation to contributory negligence.<sup>58</sup> The apportionment of compensation is without prejudice to the right of the third State to seek the entire compensation due from any or all of the launching States that are jointly and severally liable.<sup>59</sup> However, where a launching State which has paid compensation for damage, it has the right under Article V(2) of the Liability Convention to present a claim for indemnification to other participants in the joint launching. The participants in a joint launching are free to conclude agreements regarding the apportioning among them of the financial obligation in respect of which they are jointly and severally liable.<sup>60</sup> These agreements are without prejudice to the right of a

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<sup>53</sup> See UN, *Treaties and Principles on Outer Space and Related General Assembly Resolutions*, Addendum: Status of International Agreements relating to Activities in Outer Space as at the 1<sup>st</sup> January 2009, ST/SPACE/11/Rev.2/Add.2. This does not reflect the recent accession of the Republic of Korea to the Registry Convention in March 2009 (see C.N.154.2009.TREATIES-1) but is otherwise up-to-date.

<sup>54</sup> Art.IV(1) of the Liability Convention.

<sup>55</sup> Art.V(1) of the Liability Convention

<sup>56</sup> Art.IV(2) of the Liability Convention.

<sup>57</sup> *Ibid.*

<sup>58</sup> Civil Liability Act 1961(ROI), s.34.

<sup>59</sup> Art.IV(2) of the Liability Convention.

<sup>60</sup> Art.V(2) of the Liability Convention

State sustaining damage to seek the entire compensation due from any or all of the launching States jointly and severally liable.<sup>61</sup>

## **2.7 Escaping Liability under the *Corpus Iuris*<sup>62</sup>**

There are several means of escaping liability. The most obvious means is where the claimant State fails to demonstrate a constituent proof such as causation or damage, where strict liability is applicable, or, where damage is elsewhere than on the surface of the earth or to an aircraft in flight, additionally the failure to show fault. Contributory negligence may also operate as a complete or partial defence. The claim may fall outside the terms of the Convention or may be time-barred.

Liability may be escaped in the case of damage under a fault-based theory where the claimant State fails to demonstrate the necessary level of fault. Where liability is absolute, the claimant State need do no more than prove that the damage asserted occurred in the manner alleged. The central proofs in making a claim based on absolute liability involve showing that the harm occurred, that it was due to a space object and that the respondent State was a launching state of the space object in question. In the case of fault-based liability, it will be necessary to show that the harm would not have occurred but for the fault of the defendant State or the fault of a party for which it bears international responsibility. In light of the commercialisation of space, it is this last step which may be the most critical, particularly where the party is an international corporation with shareholders and its seat in separate states. Proof of 'fault' involves demonstrating a failure in the exercise of due care, a falling below in the standard to be expected.

The Liability Convention also provides for exoneration in the case of absolute liability to the extent that a launching State establishes that the damage has resulted either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State or of natural or juridical

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<sup>61</sup> Art.V(2) of the Liability Convention.

<sup>62</sup> See Van Bogaert, E.R.C., *Aspects of Space Law* (Kluwer Law International, Deventer, 1986), p.167 *et seq.*

persons it represents.<sup>63</sup> However, this contributory negligence defence is unavailable where the damage has resulted from activities conducted by a launching State that are not in conformity with international law.<sup>64</sup> This includes specifically the UN Charter and the 1967 Treaty. While the burden of showing contributory negligence rests on the respondent State, the burden of showing that the defence is unavailable rests on the claimant State.

A further means of evading liability under the *corpus iuris* is to argue that the claim falls outside its scope, for instance, where damage is caused to a space object by an aircraft. Further limitations on the scope of the Liability Convention are set out in Article VII which states that the provisions of the Convention do not apply damage caused by a space object of a launching State to its own nationals<sup>65</sup> or to foreign nationals during such time as they are participating in the operation of that space object from the time of its launching or at any stage thereafter until its descent, or during such time as they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching State.<sup>66</sup> It is also possible to escape liability by showing that the state is not entitled to make the claim presented, that claim falls outside the time limit provided for in the Convention (both of which are considered immediately below) or that the claimant is presenting a claim that is being pursued in the courts or administrative tribunals or agencies of a launching State or under another international agreement which is binding on the States concerned in respect of the same damage.<sup>67</sup>

## **2.8 Claimants under the *Corpus Iuris***

The Liability Convention permits both States that suffer damage or states whose natural or juridical persons have suffered damage to present claims.<sup>68</sup> The

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<sup>63</sup> Article VI(1) of the Liability Convention.

<sup>64</sup> Article VI(2) of the Liability Convention.

<sup>65</sup> Article VII(a) of the Liability Convention.

<sup>66</sup> Article VII(b) of the Liability Convention.

<sup>67</sup> Article XI(2) of the Liability Convention.

<sup>68</sup> Article VIII(1) of the Liability Convention.

Convention envisages a system of priority to claims with the State of nationality being given the first opportunity to present a claim. If it does not do so, then a State which sustained damage in its territory by any natural or juridical person, present a claim to a launching State.<sup>69</sup> In the event that neither the State of nationality nor the State in whose territory the damage was sustained present a claim or notify their intention of so doing, another State may, in respect of damage sustained by its permanent residents, present a claim to a launching State.<sup>70</sup>

## **2.9 Time Limits**

Unlike the Treaty, the Liability Convention sets down a period of limitation. Claimant states have one year to present their claim following the date of the occurrence of the damage or the identification of the launching State which is liable.<sup>71</sup> The use of the word ‘following’ rather than ‘from’ implies that time runs from the day after the specific date – the year does not include the day on which the harm occurred or the knowledge of identity accrued.

If a State knows neither of the occurrence of the damage or has been unable to identify the liable launching State, it may present a claim within one year following the date on which the knowledge accrued. But this period cannot exceed one year following the date on which the State could reasonably be expected to have learned of the facts through the exercise of due diligence. The time limit applies even where the full extent of the damage is not known. In this event, however, the Claimant State is entitled to revise the claim and submit additional documentation after the expiration of such time-limits until one year after the full extent of the damage is known.

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<sup>69</sup> Article VIII(2) of the Liability Convention.

<sup>70</sup> Article VIII(3) of the Liability Convention.

<sup>71</sup> Article X of the Liability Convention.

## 2.10 Compensation

The Liability Convention 1972 does not impose any financial cap on the scope of liability. The aim of the Convention is explicitly compensatory in nature and is claimant-orientated.<sup>72</sup> Under Article XII, compensation under the Convention is determined in accordance with international law and the principles of justice and equity, “in order to provide such reparation in respect of the damage as will restore the person, natural or juridical, State or international organization on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred”.<sup>73</sup> The law of the State where the harm occurred where it occurred on the surface of the Earth is the law applicable to settling compensation.<sup>74</sup> The Convention does not appear to envisage non-compensatory damages, such as punitive damages. However, in the Cosmos 954 claim, moral damages were available for violation of state sovereignty. The compensation, unless otherwise agreed, is to be paid in the currency of the claimant state or if requested by the claimant, in the currency of the respondent state.<sup>75</sup> Further procedure for the presenting of a claim is set out in the Convention.

## 2.11 Procedure<sup>76</sup>

While the Treaty is silent as to procedure, the Convention sets out the method for presenting a claim and resolving disputes.<sup>77</sup> The Convention itself recognised the “need to elaborate effective international rules and procedures concerning liability...

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<sup>72</sup> Christol, Carl Q., “International Liability for Damage Caused by Space Objects,” (1980) 74 *Am. J. Int'l L.* 346, at 351.

<sup>73</sup> The *restitutio in integrum* principle was consistently supported by the US in the preparation of the Convention. See Reis, Herbert, “Some Reflections on the Liability Conventions for Outer Space,” (1978) 6 *J. Space L.* 125, 126.

<sup>74</sup> See U.N. Doc A/AC.105/C.2/L.74.

<sup>75</sup> Article XIII of the Liability Convention.

<sup>76</sup> See Forkosch, Morris, *Outer Space and Legal Liability* (Martinus Nijhoff, The Hague, 1982) p.87 *et seq*

<sup>77</sup> See generally, Goh, Gérardine Meishan, *Dispute Settlement in International Law: A Multi-Door Courthouse for Outer Space* (Martinus Nijhoff, Leiden, 2007).

and to ensure prompt payment to victims”.<sup>78</sup> The *travaux préparatoires* indicate that the procedure for the settlement of claims was ‘contentious’<sup>79</sup> with Belgium<sup>80</sup> and the US seeking compulsory arbitration<sup>81</sup> while the Hungarians sought conciliation committee branded as an arbitral tribunal.<sup>82</sup> The system set down by the Liability Convention is the “most extensive regulation of dispute settlement available in the framework of international space law”.<sup>83</sup> Under the Convention,<sup>84</sup> the claimant state must first avail itself of diplomatic channels when presenting its claim.<sup>85</sup> If a State does not maintain diplomatic relations with the launching State concerned, it may request another State to present its claim to that launching State or otherwise represent its interests. The State may also present its claim through the Secretary-General of the United Nations, provided both it and the launching State are both Members of the United Nations. If no settlement of a claim can be reached through diplomatic negotiations the parties concerned must establish a Claims Commission at the request of either.<sup>86</sup> This must be done within one year from the date on which the claimant State notified the launching State that it had submitted the documentation of its claim.<sup>87</sup> There is no requirement to exhaust domestic remedies before presenting a claim.<sup>88</sup>

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<sup>78</sup> Preambulatory Clause 4 of the Liability Convention.

<sup>79</sup> See Goh, *supra*, p.32.

<sup>80</sup> See the Belgium, Working Paper on the Unification of Certain Rules Governing Liability for Damage Caused by Space Objects, Art.4(c), as amended, Art.6(c), unamended A/AC.105/C.2/L.7, [1965] *YB of Air & Sp. L.* at 346.

<sup>81</sup> See Art.VII of the U.S., *Draft Proposal on Liability for Space Vehicle Accidents*, A/AC.105/C.2/L.4.

<sup>82</sup> See the Art XI of the Hungarian, *Draft Convention Concerning Liability for Damage Caused by the Launching of Objects Into Outer Space*, A/AC.105/C.2/L.10/ Rev.1

<sup>83</sup> See Goh, *supra*, p.33. There is a simpler procedure set down by the Moon Agreement of 1979 which provides for consultation, see part II of this chapter.

<sup>84</sup> See Goh, *supra*, pp. 32-39.

<sup>85</sup> Article IX of the Liability Convention.

<sup>86</sup> Article XIV of the Liability Convention.

<sup>87</sup> *Ibid.*

<sup>88</sup> Article XI(1) of the Liability Convention.



The Claims Commission consists of three members, one appointee of the claimant state, one appointee of the launching state and a third appointee, a chairman, jointly selected by the states.<sup>89</sup> There is no increase in the membership of the Commission in the event of multiple claimant or launching states joined in any one proceeding before the Commission.<sup>90</sup> In such circumstances, the claimant States must collectively appoint one member of the Commission in the same manner and subject to the same conditions as would be the case for a single claimant State; the same for the launching states. If the claimant States or the launching States do not make the appointment within the stipulated period, the Chairman shall constitute a single-member Commission. The appointments must occur within two months of the request for the establishment of a commission.<sup>91</sup> However, if no agreement is reached on the joint-appointment of a chairperson within four months of the request, either party may request the Secretary-General of the United Nations to appoint him/her within a further two months.<sup>92</sup> In the event that a state fails to make its appointment within two months, the Chairman must, at the request of the other party, constitute a single-member Claims Commission. If a vacancy should arise for any reason, it is to be filled by the same procedure adopted for the original appointment.<sup>93</sup>

Except in the case of decisions and awards by a single-member Commission, all decisions and awards of the Commission must be by majority vote.<sup>94</sup> Nonetheless, it is free to determine its own procedure,<sup>95</sup> the place or places where it is to sit and all other administrative matters.<sup>96</sup> Its expenses are borne equally by the parties unless otherwise decided by the Commission itself.<sup>97</sup> The Commission has the jurisdiction to decide the merits of the claim and determine the amount of compensation payable,

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<sup>89</sup> Article XV of the Liability Convention.

<sup>90</sup> Article XVII of the Liability Convention.

<sup>91</sup> Article XV(1) of the Liability Convention.

<sup>92</sup> Article XV(2) of the Liability Convention.

<sup>93</sup> Article XVI(2) of the Liability Convention.

<sup>94</sup> Article XVI(5) of the Liability Convention.

<sup>95</sup> Article XVI(3) of the Liability Convention.

<sup>96</sup> Article XVI(4) of the Liability Convention.

<sup>97</sup> Article XX of the Liability Convention.

if any.<sup>98</sup> Its decision is only final and binding if the parties have so agreed; otherwise its final and recommendatory award, must simply be considered by the parties in good faith.<sup>99</sup> The Commission must state the reasons for its decision or award,<sup>100</sup> make its decision/award public<sup>101</sup> and give said decision or award as promptly as possible (no later than one year from the date of its establishment, unless an extension of this period is found necessary by the Commission).<sup>102</sup> The non-binding nature of its awards is viewed as a serious defect by Foster who observes that “the Convention cannot be said to lay down an effective procedure under which disputed claims are definitely settled-at best it ensures a claimant State a reasonable prospect of the payment of compensation.”<sup>103</sup> However, it is also conceded that in the absence of good faith, even a binding award would be of little value in the absence of a means of enforcing the payment of awards.<sup>104</sup> Forkosch states that “[f]unamentally, these provisions may be termed ‘self-help’ ones”.<sup>105</sup> Despite the criticisms, the Liability Convention has been said to provide “a solid working foundation for international cooperation in outer space and represents a step forward in the legal regulation of space activities.”

## **2.12 Convention Interaction with Other Law**

The Convention both draws on other law and operates in parallel with existing system both internationally and nationally. An example of the former is in relation to the principles applicable to the determination of appropriate compensation<sup>106</sup> mentioned above. In the case of the latter Convention does not preclude or prevent a State, or the natural or juridical persons it represents, from pursuing a claim in the

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<sup>98</sup> Article XVIII of the Liability Convention.

<sup>99</sup> Article XIX(2) of the Liability Convention.

<sup>100</sup> Article XIX(2) of the Liability Convention.

<sup>101</sup> Article XIX(4) of the Liability Convention.

<sup>102</sup> Article XIX(3) of the Liability Convention.

<sup>103</sup> Foster, W.F., “The Convention on International Liability for Damage Caused by Space Objects,” (1972) *Can. Y.B. Int'l L.* 137, 175.

<sup>104</sup> *Ibid*, pp. 175-6.

<sup>105</sup> Forkosch, *supra*, p.12.

<sup>106</sup> Article XII of the Liability Convention.

courts or administrative tribunals or agencies of a launching State or a State from pursuing its claim under another international agreement.<sup>107</sup> Indeed Kozuka states that it may be more likely that an action would be taken against the private entity engaged in the space activity by the damaged party directly.<sup>108</sup> Furthermore, the provisions of the Convention do not affect other international agreements in force in so far as relations between the States Parties to such agreements are concerned<sup>109</sup> nor do they prevent States from concluding international agreements “reaffirming, supplementing or extending its provisions”.<sup>110</sup>

### **2.13 Difficulties Posed by the Current International Law**

There are several difficulties posed by the system established by the *corpus iuris*. As stated, liability will always fall upon the launching state and once a launching state, always a launching state. Thus liability cannot be shifted from one launching state to a non-launching state even where the ownership and jurisdiction over the space object may be shifted from one State Registry to another.<sup>111</sup> A breach may give rise only as a result of a failure to supervise. The law does not reflect a climate where space objects may be and are entirely held by private corporations and transferred or sold to other private entities of other States. The second difficulty with the current system is that there is no provision for recovery by injured parties where the parties are individuals. While it is a definitional quality of international law that it regulates relations between and among states, there are international aspects to private commercial relationships and to the liability of commercial operators to third parties that merit regulation at international level. It remains to be considered whether these issues are resolved through the application of general principles of international law.

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<sup>107</sup> Article XI(2) of the Liability Convention.

<sup>108</sup> Kozuka, S., “Private Rules for the Commercial Activities in Space: *Lex Ferenda*,” [2005] 48 *Proc. Coll L. Out. Sp.* 300.

<sup>109</sup> Article XXIII(1) of the Liability Convention.

<sup>110</sup> Article XXIII(2) of the Liability Convention.

<sup>111</sup> See Gerhard, Michael, “Transfer of Operation and Control with Respect to Space Objects – Problems of Responsibility and Liability of States,” [2002] 4 *ZLW* 571.

### 3. Regulation of Liability under General Principles of International Law

As the Cosmos 954 claim indicates, liability may be imposed independently of the provisions of the *corpus iuris*. General principles of international law are applicable to outer space and bind States in both their exploration and use of outer space including the Moon and other celestial bodies.<sup>112</sup> Reliance may be had to customary international law which embodies the principles set out in the *corpus iuris*.<sup>113</sup> As such, even those few States that are not signatories to the Treaty or Convention will be bound by the principles they embody as a part of custom. This means that the general principles in reflecting the *corpus iuris* will not resolve the first difficulty outlined above in addressing liability where the launching State no longer exercises jurisdiction over the object. General principles may also be coupled with the provisions of the *corpus iuris* in a claim as was done in the Cosmos 954 claim. The general principles provide that a state may be liable without fault for its ultra-hazardous activities. The principle is applied in relation to nuclear activities as well as to space activities. The general principles still apply only between states, therefore the second difficulty identified above is not resolved.

### 4. Cosmos 954<sup>114</sup>

Cosmos 954 was a Soviet Radar Ocean Reconnaissance Satellite (RORSAT) which had a nuclear powered reactor containing approximately 55kg of 90% enriched

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<sup>112</sup> Article I(2) of the Outer Space Treaty; Principle 4 of the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space.

<sup>113</sup> See Ogunbanwo, Ogunisola O., *International Law and Outer Space Activities* (Martinus Nijhoff, The Hague, 1975), p.18. On instant custom, see Cheng, Bin, "United Nations Resolutions on Outer Space: 'Instant' Customary International Law?" (1965) 5 *Indian Journal of Int'l L* 35.

<sup>114</sup> Claim against the Union of Soviet Socialist Republics for Damage Caused by Soviet Cosmos 954, 18 I.L.M. 899, 901 (1979); Protocol on Settlement of Canada's Claim for Damages Caused by 'Cosmos 954', Apr. 2, 1981, Can.-U.S.S.R., 20 I.L.M. 689 (1981). See generally, Gummer, Campbell, Richard and Knight, *Cosmos 954: The Occurrence and Nature of Recovered Debris* (Hull, Quebec, 1980) and Benkö, Marietta, de Graaff, Willem, Cornelia, Gijssbertha and Reijnen, Maria, *Space Law in the United Nations* (Martinus Nijhoff, The Hague), p.49 *et seq.*

uranium 235.<sup>115</sup> Usually, the reactor split from the parent body of the spacecraft and the radioactive material was boosted into a graveyard orbit where it would remain approx. 600 years. In the case of Cosmos 954, the satellite depressurised rapidly, presumably due to a collision with another object. Technicians were unable to separate the reactor prior to de-orbiting. The Russians sent out no warning or notice regarding Cosmos as it was believed it would re-enter over the Aleutian islands and predicted complete destruction. However, Cosmos was monitored on radar by NORAD. U.S. National Security Adviser at the time, Zbigniew Brzezinski, observed that it was "a space age difficulty." On January 24, 1978, it deorbited and crashed in the Great Slave Lake area of the Northwest Territories, with the majority disintegrating during re-entry but the remainder, some 65kg,<sup>116</sup> resulting in a shower of radioactive debris (approximately 3,500 pieces) which spread over a 600 kilometre stretch. The explosion of the satellite was equivalent to 100,000 tons of TNT (five times the explosive force of the Hiroshima bomb).<sup>117</sup> The irradiation of the debris varied from a negligible to lethal.<sup>118</sup> It was the seventh known incident of a nuclear-powered space object malfunctioning.

Following the crash, the USSR offered immediate assistance but it was March 21<sup>st</sup> before it confirmed that the satellite carried a nuclear-powered reactor onboard.<sup>119</sup> The Canadian Air Force and US' militaries began a search for debris ('Operation Morning Light')<sup>120</sup> which lasted some eight months and resulted in an estimated recovery of 0.1% of Cosmos 954's nuclear core. The clean-up costs amounted to approximately \$14m.<sup>121</sup> Canada claimed compensation (around \$6m) for:

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<sup>115</sup> Ibid.

<sup>116</sup> See Benkö et al, *supra*, p.50.

<sup>117</sup> "Cosmos 954: An Ugly Death," *Nation*, Feb 6<sup>th</sup> 1978

<http://www.time.com/time/magazine/article/0,9171,945940-3,00.html>

<sup>118</sup> See Benkö et al, *supra*, p.50.

<sup>119</sup> Ibid.

<sup>120</sup> See generally, Heaps, Leo, *Operation Morning Light: Terror in Our Skies* (Paddington Press, 1978).

<sup>121</sup> Atomic Energy Control Board, "AECB Publishes Summary Report on Cosmos 954 Satellite Crash, Oct. 22, 1980, News Release 80-21.

damage the result of the intrusion into Canadian air space of a Soviet space object, the Cosmos 954 satellite, and the deposit on Canadian territory of hazardous radioactive debris from the satellite [pursuant to] the 1972 Convention on International Liability for Damage caused by Space Objects and the international practice of states.<sup>122</sup>

Canada submitted that “the presence of [the] debris in the environment rendering part of Canada's territory unfit for use, constituted "damage to property" within the meaning of the Convention.” It also claimed that the USSR had failed to minimise the deleterious results of the intrusion of the satellite into Canadian airspace in failing to notify Canada of its imminent re-entry and in answering promptly to its questions. Under general principles of international law, Canada had a duty to take the necessary measures to prevent and reduce the harmful consequences of the damage and thereby to mitigate damages, which in completing its clean-up operations to domestic standards, it fulfilled. Canada also claimed breaches of sovereignty and applied the theory of absolute liability for activities having in common a high degree of risk as a general principle of international law. The matter was settled before any Claims Commission was constituted and Canada ultimately accepted \$3m Canadian dollars from the U.S.S.R.<sup>123</sup>

#### **4.1 Other Space Object Incidents**

While Cosmos 954 remains the sole claim raised under the Liability Convention to date,<sup>124</sup> there have been other incidents concerning space objects. Cosmos 1402

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<sup>122</sup> Beckman, James, claims that Canada did not ‘formally invoked’ the Liability Convention, but used its rules as ‘guiding principles’: “Citizens Without a Forum: The Lack of an Appropriate and Consistent Remedy for United States Citizens Injured or Killed as the Result of Activity Above the Territorial Air Space,” 22 *B.C. Int'l & Comp. L. Rev.* 249, at 273. While the matter was not resolved by means of recourse to the Claims Commission, the Convention was formally relied up in the claim itself and it is considered to be the sole instant of a claim brought under the terms of the *corpus iuris*.

<sup>123</sup> Graham, John F., *Space Exploration: From Talisman of the Past to Gateway of the Future*, (NASA: Washington, 1995) ch.30.

<sup>124</sup> Jakhu, Ram, “Legal Issues Relating to the Global Public Interest in Outer Space,” prepared as part of the Advanced Methods of Cooperative Security Program at the Center for International Security Studies at Maryland, 21 (Oct. 2005).

(USSR) also encountered problems and technicians were unable to separate the nuclear core. It crashed on January 23, 1983, hundreds of kilometers south of the island of Diego Garcia in the Indian Ocean. No debris was found. To date, there have been eleven known cases of nuclear-powered satellites malfunctioning: seven from the USSR - Cosmos 300 (1969); Cosmos 305 (1969) 2 x ROSATS (1969 and 1973); Cosmos 954 (1978), Cosmos 1402 (1983) and Cosmos 1900 (1988)) and four from the U.S. (Transit 5BN 3 (Systems for Nuclear Power (SNAP)-9A)(1964); SNAP-10A (1965); NIMBUS B1 (SNAP-19) (1968) and Apollo-13 (SNAP-27) (1970) out of a total 51 Radio-isotopic Thermonuclear Generators and 8 nuclear reactors on rockets. In two instances, parts of the space object did not re-enter the earth's atmosphere<sup>125</sup> – *Skylab* and *Salyut 7*. Multiple pieces of Skylab, most of which landed in the Indian Ocean off the coast of Australia, landed in sparsely populated areas of Western Australia. The U.S. State Department received a \$400 fine for littering from the then president of Esperance shire, Mervin Andre.<sup>126</sup> The fine remains unpaid. The *Salyut 7* (USSR) disintegrated over Argentina. Debris was located 400 km from Buenos Aires. No liability arose for damage to the surface.

## 5. Liability for Breach of International Responsibility

Liability may also be imposed as a result of a breach of an international obligation, imposed by treaty or custom. A failure to meet the responsibility set out in Article VI of the Outer Space Treaty for instance would give rise to such liability. This is of particular importance in relation to the increasing commercialisation of space services. Article VI provides that States bear international responsibility for national activities in outer space, including the moon and other celestial bodies, *whether such activities are carried on by governmental agencies or by non-governmental*.<sup>127</sup>

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<sup>125</sup> Kulcinski, G.L., Lecture 24: Nuclear Thermal Rockets, March 22, 2004, Rawlings-SAIC, <http://fti.neep.wisc.edu/neep533/SPRING2004/lecture24.pdf>

<sup>126</sup> Zak, Anatoly, "Falling on a City Near You: Dangerous Spacecraft Re-Entries" *Space*, June 2<sup>nd</sup> 2000 available at <[http://www.space.com/news/spacehistory/dangerous\\_reentries\\_000602.html](http://www.space.com/news/spacehistory/dangerous_reentries_000602.html)>

<sup>127</sup> See Bender, James, *Space Transport Liability: National and International Aspects* (Martinus Nijhoff, London, 1995) p.279 *et seq* and Zhukov and Kolosov, *International Space Law* (trans. Boris Belitsky, Praeger, Eastborne, 1984), p.66 *et seq*.

Applying general principles of international law, states of the private entity which manufactured a satellite, launch vehicle/platform or procured a launch will bear international responsibility for such activities.

The activities of non-governmental entities in outer space, including the moon and other celestial bodies, require authorization and continuing supervision by the appropriate State. In the case of international organizations, when their activities are carried out in outer space, including the moon and other celestial bodies, responsibility for compliance with the Treaty falls upon not only the international organization but by the States to the Treaty participating in such organization. Failure to authorise and/or supervise continually the activities of such organisations will give rise to an internationally wrongful act meeting both elements of the test set out under the ILC's draft articles on International Responsibility for Wrongful Acts.<sup>128</sup> The same may be said of state agencies, such as NASA

Under Art.3 of the Draft Articles a 'wrongful act' is first conduct which consists of an action or omission that is attributable to the State under international law and second which constitutes a breach of an international obligation of the State. The articles further provide for the circumstances where such attribution is possible. Thus any organ that exercises legislative, executive or judicial powers<sup>129</sup> or which exercises governmental authority<sup>130</sup> will have its conduct considered as that of the State. Therefore where a government department directly involved in managing space affairs and setting policy, such as exists in Ireland, fails to oversee its nationals' activities, there will be no difficulty in attributing that omission to the State. Similarly where there is a board or office within a Department, for example, the Czech Board for Space Activities which is established under the rubric of the Czech Ministry of Education, liability may also be attributed by it to the State. This

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<sup>128</sup> ILC's *Draft Articles on International Responsibility for Wrongful Acts 2001* [2001] *Yearbook of the International Law Commission, 2001*, vol. II (Part Two). Annex to General Assembly resolution 56/83 of 12 December 2001, and corrected by document A/56/49(Vol. I)/Corr.4.

<sup>129</sup> Art.4(1) of the Draft Articles for Wrongful Acts.

<sup>130</sup> Art.5 of the Draft Articles for Wrongful Acts.



is so even where the Board or office acts *ultra vires* under the internal law of the State.<sup>131</sup>

Conduct will also be attributed to the State where the person or group of persons is in fact acting on the instructions of, or under the direction or control of, that State in carrying out the conduct.<sup>132</sup> Therefore those States which have agencies with separate legislative foundations and personality from Government, for instance, U.S. (NASA) will be bound by the conduct of those states. Where the agency is also acting on the behest of another state, for instance where the space shuttle was procured for another State for the launch and transportation of a satellite for that other State, its conduct will bind that other State and that State may be liable where there is a breach of an obligation embodied in custom or hard law by that agency.

The breach of the international obligation exists “when an act of [a] State is not in conformity with what is required of it by that obligation, regardless of its origin or character”.<sup>133</sup> Acts, omissions and composite acts or omissions may give rise to a breach.<sup>134</sup> The obligation must bind the State at the time when the act occurs<sup>135</sup> although given the position of custom in space law, the responsibility to supervise is an obligation that will bind those few State that have not ratified the Treaty itself.

The draft articles further provide the responsible state is obligated to make full reparation for the injury caused by the Act.<sup>136</sup> There are defences however to such claims. Of particular relevance to civil space activities are the defence of consent,<sup>137</sup> distress,<sup>138</sup> necessity<sup>139</sup> and *force majeure*.<sup>140</sup> *Force majeure* under the Draft Articles is defined as “the occurrence of an irresistible force or of an unforeseen event,

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<sup>131</sup> Art.7 of the Draft Articles for Wrongful Acts.

<sup>132</sup> Art. 8 of the Draft Articles for Wrongful Acts.

<sup>133</sup> Art.12 of the Draft Articles for Wrongful Acts.

<sup>134</sup> Art. 15 of the Draft Articles for Wrongful Acts.

<sup>135</sup> Art.13 of the Draft Articles for Wrongful Acts.

<sup>136</sup> Art. 31(1) of the Draft Articles for Wrongful Acts.

<sup>137</sup> Art.20 of the Draft Articles for Wrongful Acts.

<sup>138</sup> Art.23 of the Draft Articles for Wrongful Acts.

<sup>139</sup> Art.25 of the Draft Articles for Wrongful Acts.

<sup>140</sup> Art.23 of the Draft Articles for Wrongful Acts.

beyond the control of the State, making it materially impossible in the circumstances to perform the obligation”.

## **6. Challenges for the Current Regime**

The increased levels of commercialisation pose a challenge to the efficiency of the current regime. In addition the nature of the commercialisation has altered. State involvement now exists at a peripheral level confined to the regulation of launches through licensing and cross-waivers. More traditional commercialisation of launches still occurs – for example, the payment by a private entity to a State to launch its payload into space, or to use its facilities for a private launch. Indeed, the ISS is an example of States creating a framework, both physical and legal, in which commercialisation can flourish. However, in certain areas launches and payloads are entirely private in nature and have the potential to launch from private facilities. Furthermore, the nature of payloads is also set to undergo a change from that of a space object to persons bringing with it challenges both at the national and international levels with regard to the regulation of liability. The current international system does not regulate the relationship between private operators of space vehicles and third parties with regard to liability nor between private operators and those with whom they contract. However in air law, international conventions have addressed the issues as they arise in the context of aircraft.

## **7. Regulating Liability of Private Entities<sup>141</sup> for Damage**

Liability of private entities for damage caused to the surface should be shifted onto the shoulders of those entities.<sup>142</sup> In air law, the Rome Convention has done just so while attempting to ensure adequate compensation. The potential for such a regime is examined below. Aside from the aspect of third party damage, liability vis-à-vis

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<sup>141</sup> See Reijnin, Gijssbertha, *Utilization of Outer Space and International Law* (Elsevier, Amsterdam 1981), ch. VII.

<sup>142</sup> See Zhao, Yun, “The 1972 Liability Convention: Time for Revision?” (2004) 20 *Space Policy* 117, at p. 118.

participants should also be regulated at international level. Again, air law provides an example of how this may be achieved in space law. There are two regimes which differ in the exposure to liability – the Warsaw and Montreal Conventions. Both will be considered with regard to space tourist liability.

### **7.1 Liability of Private Entities for Damage to the Surface**

Liability in air law provides for states to legislate for the injured parties to directly pursue their claim against the private party. The Rome Convention of 1952<sup>143</sup> was motivated by the desire to ensure adequate compensation for persons who suffer damage caused on the surface by foreign aircraft<sup>144</sup> and adopts a strict liability system.<sup>145</sup> It has been ratified by just fewer than ninety states but China and the U.S. have not acceded to it due to perceived deficiencies with regard to environmental damage.<sup>146</sup> Damage caused as a result of mid-air collisions is therefore omitted from the scope of the Rome Convention as fault liability is preferable where both parties are engaged in the same risk-bearing activity.<sup>147</sup> The Montreal Protocol of 1978 widened its scope so the regime now applies to operators who have their principal place of business or if no such place exists, his place of residence in another Contracting State and not simply when damage is caused in one state by an aircraft registered in another. The scope and applicability of the Rome Convention as amended will be considered below to assess whether it provides an effective response to challenges in space law.

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<sup>143</sup> Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface, Oct. 7, 1952, ICAO Doc. 7364 [hereinafter Rome Convention]. See generally Diederiks-Verschoor, *An Introduction to Air Law*, 8<sup>th</sup> ed. (Kluwer Law International, Alphen aan den Rijn, 2006), p. 216 *et seq* and Wilberforce, R.O., “Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface,” (1953) 2 *I.C.L.Q.* 90.

<sup>144</sup> Preamble, the Rome Convention.

<sup>145</sup> See Diederiks-Verschoor, *An Introduction to Air Law*, *supra*, p.217. Only the US voted in favour of negligence: See Rinck, G., “The Rome Conventions of 1933 and 1952: Do They Point a Moral?” (1961-63) 28 *J. of Air L. & Com.* 418, at p.437.

<sup>146</sup> See Weeks, Jeffrey, “The Future of the Rome Convention on Damage Caused by Aircraft to Third Parties on the Surface: Will All Roads Lead Away from Rome?” (2002) 7 *International Trade and Business Law* 131 at p.133

<sup>147</sup> See Fitzgergald, G.F., “International Review – The Development of International Liability Rules Concerning Aerial Conditions,” [1954] *J. of Air L & Com* 203.

Under Article 1, any person who suffers damage on the surface caused by an aircraft in flight or by any person or thing falling therefrom is entitled to compensation. The Convention excludes recovery for damage that is not a direct consequence of the incident giving rise thereto, or if the damage results from the mere fact of passage of the aircraft through the airspace in conformity with existing air traffic regulations.<sup>148</sup>

An aircraft<sup>149</sup> is considered to be in flight “from the moment when power is applied for the purpose of actual take-off until the moment when the landing run ends”.<sup>150</sup> For aircraft lighter than air, the expression "in flight" relates to the period from the moment when it becomes detached from the surface until it becomes again attached thereto.<sup>151</sup> Significantly, liability does not attach to the flag state but to the operator of the aircraft.<sup>152</sup> Liability was imposed on the entity that chooses to engage in the activity and who benefits the most from it.<sup>153</sup>

The ‘operator’ for these purposes is the person who was making use<sup>154</sup> of the aircraft at the time the damage was caused, but if control of the navigation of the aircraft was retained by the person from whom the right to make use of the aircraft was derived, whether directly or indirectly, then that person is considered the operator.<sup>155</sup> The registered owner of the aircraft is presumed to be the operator and unless proven otherwise.<sup>156</sup> If the aircraft is registered as the property of a State, the Montreal

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<sup>148</sup> Article 1(1) of the Rome Convention. This was applied in *Duchemin v. Pan American World Airways et al* [1974] *Revue Générale de L’Air et De L’Espace* 273; *Vincent d’Anna v United States* 181 F.2d 335 and *Nova Mink Ltd. v Trans-Canada Airlines* [1951] 2 D.L.R. 241.

<sup>149</sup> Any machine that can derive support in the atmosphere from the reactions of the air: Chicago Convention 1944.

<sup>150</sup> Article 1(2) of the Rome Convention.

<sup>151</sup> Article 1(2) of the Rome Convention.

<sup>152</sup> Article 2(1) of the Rome Convention.

<sup>153</sup> See ICAO Doc. 7379-LC/34 (Rome September/October, 1952), pp.12-15, 53-84.

<sup>154</sup> Article 2(2)(b) of the Rome Convention provides that ‘a person shall be considered to be making use of an aircraft when he is using it personally or when his servants or agents are using the aircraft in the course of their employment, whether or not within the scope of their authority’.

<sup>155</sup> Article 2(2)(a) of the Rome Convention.

<sup>156</sup> Article 2(3) of the Rome Convention.

Protocol provides that “liability devolves upon the person to whom, in accordance with the law of the State concerned, the aircraft has been entrusted for operation”.<sup>157</sup> Where the operator at the time the damage was caused did not have the exclusive right to use the aircraft for a period of more than fourteen days, dating from the moment when the right to use commenced. Then both the operator and the person from whom such right was derived may be jointly and severally liable.<sup>158</sup>

Joint and several liability may also arise on an unlawful user of an aircraft and the operator unless that latter can show that he exercised due care to prevent such use.<sup>159</sup> No liability is imposed where the damage was the direct consequence of armed conflict or civil disturbance, or if such person has been deprived of the use of the aircraft by act of public authority.<sup>160</sup> The Convention provides for both complete and partial contributory negligence defence.<sup>161</sup> In the event that two or more aircraft collide or interfere with each other in flight and damage results, or when two or more aircraft have jointly caused such damage, each of the aircraft concerned is considered to have caused the damage and is liable accordingly. There is no liability for instances of damage caused by aircraft in flight or objects falling therefrom outside the Convention save in the case of intentional damage.<sup>162</sup>

The scope of liability is limited by the Convention.<sup>163</sup> Where the total amount of the claims made exceed the limits, the claim where exclusively in respect of loss of life or personal injury or exclusively in respect of damage to property will be reduced in

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<sup>157</sup> Article II of the Montreal Convention 1978 inserting a new Article 2(4) into the Rome Convention.

<sup>158</sup> Article 3 of the Rome Convention.

<sup>159</sup> This has resulted in the Convention becoming ‘bogged down over treatment of the so-called terrorist risk’: Petras, Christopher, “An Alternative Proposal to Modernize the Liability Regime for Surface Damage Caused by Aircraft to Address Damage Resulting from Hijackings or Other Unlawful Interference” (2007) 10 *Gonzaga Journal of Int’l Law* 315 (argues in favour of a system similar to the Liability Convention for aircraft hijacking).

<sup>160</sup> Article 5 of the Rome Convention.

<sup>161</sup> Article 6(1) of the Rome Convention. The injured party will also be liable for the negligence of his/her servants or agents unless they were acting outside the scope of their authority and a claimant in fatal injuries action will be liable similarly for the negligence of the deceased (Article 6(2)).

<sup>162</sup> Article 9 of the Rome Convention.

<sup>163</sup> Article 11 of the Rome Convention as replaced by Article III of the Montreal Protocol 1978.

proportion to their respective amounts. Where the the claims are both in respect of loss of life/ personal injury and in respect of damage to property, the total sum distributable will “be appropriated preferentially to meet proportionately the claims in respect of loss of life and personal injury. The remainder, if any, will be distributed proportionately among the claims in respect of damage to property.”<sup>164</sup>

The limits have been increased in the event of a deliberate act or omission, rendering liability unlimited.<sup>165</sup> Similarly where an aircraft has been taken and used without consent, the unlawful user’s liability is unlimited.<sup>166</sup> In the case of joint and several liability, the claimant is not entitled to total compensation greater than the highest indemnity which may be awarded against any one of the persons liable.<sup>167</sup> The Convention also provides for security for operator’s loss. Although States are not required to do so by the terms of the instrument, they may require that the operator of an aircraft registered in another Contracting State be insured in respect of his liability for damage sustained in its up to the limits under the Convention.<sup>168</sup>

The question remains as to whether the Rome Convention provides a viable means of resolving the challenges to the current system. It would address two particular difficulties. First, from a claimant-oriented viewpoint, it would allow direct actions by the injured parties against a private entity responsible, thus eliminating the procedural inefficiencies of the current approach. Secondly, it shifts the burden of liability and responsibility away from the state itself. However, as States may require foreign operators to insure against the risk, the burden of liability will ultimately be shifted onto the insurer. In this respect, the current system and that envisaged by the Rome Convention are not radically dissimilar in their end result. The current system of absolute liability, supervision and state responsibility is in part a powerful motivation for States to ensure that their nationals’ activities with regard to outer

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<sup>164</sup> Article 14 of the Rome Convention as replaced by Article IV of the Montreal Protocol 1978.

<sup>165</sup> Article 12(1) of the Rome Convention

<sup>166</sup> Article 12(2) of the Rome Convention.

<sup>167</sup> Article 13(1) of the Rome Convention.

<sup>168</sup> Article 15(1) of the Rome Convention.

space, are insured.<sup>169</sup> In cases of both private commercial air and space activities, the insurance industry safeguards against the actualisation of risk.

The current system also has its merits: in placing the burden of liability on States, there is both security and certainty. It may also be noted that the difficulty related to the identification of component parts is not remedied by a change. In short, it appears that the better approach is to maintain the direct state liability but to adopt the Rome Convention as a parallel regime. Much in the same way that States bear international responsibility for transboundary damage under general principles of international law and yet under specific international agreements (for example FUND, examined below), the burden may be borne by the private operator. Double recovery should not be permitted. However, it is not recommended that the Rome Convention be adopted wholesale, to do so would be to incorporate the recognised difficulties that Rome has into an area without them. The alternate regime would impose liability on the operator and apply a strict liability regime but liability would not be subject to financial limitations. One possibility is to impose no limits for damage causing death or injury but limits for temporary damage and damage to property as is done under the German *Luftverkehrsgesetz*.<sup>170</sup> However, with strict liability applied to both kinds of damage, parties on the ground would be in a better position than under the proposed regime below to apply to spaceflight participants. This difference may be justified on the ground that the third party on the ground has not chosen to engage in the risk-bearing activity and therefore should not be expected to assimilate the risk of actualisation to any degree. This may of course result in higher insurance premiums but as Weeks observes in relation to air transport, “the innocent bystander on the ground should not have to sacrifice full compensation so that the passenger may pay lower [fares].”<sup>171</sup>

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<sup>169</sup> See O’Brien, Z.N., “Theories of Liability for Space Activities,” [2007] *ISLR* 44.

<sup>170</sup> See Weeks, *supra*, pp. 141 and 146.

<sup>171</sup> Weeks, *supra*, p.146.

## 7.2 Liability to Spaceflight Participants<sup>172</sup>

The benefit of using international law in this regard is that it will harmonise the rules in relation to liability. The chief advantage in relation to commercial space activities is the shifting of risk allocation away from the State back towards the commercial entity engaged in the space activity at an international level. The current challenge to the Liability Convention with regard to the launching State bearing liability can only be addressed at international level. This shifting of risk and the corresponding burden of liability from the customer to the operator has occurred in other areas of transport law – for instance the Convention Concerning International Carriage by Rail 1980 (COTIF)(as amended by the Vilnius Protocol 1999),<sup>173</sup> the Athens Convention relating to the Carriage of Persons and Luggage by Sea 1980 (PAL) (as amended) and the The Convention for the Unification of Certain Rules Relating to International Carriage by Air 1929 (the Warsaw Convention)<sup>174</sup> and the Convention for the Unification of Certain Rules for International Carriage by Air 1999 (the Montreal Conventions).<sup>175</sup> Of these air and sea law are of particular interest as they both provide examples of liability regimes operating in areas that are not subject to State appropriation – the High Seas and the airspace over the High Seas.

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<sup>172</sup> On the definitional issues surrounding spaceflight participants and the current regulation, see Ch.V, s.5 (2) and (3)

<sup>173</sup> Article 26.

<sup>174</sup> Calkins, “The Cause of Action under the Warsaw Convention”, (1959) 26 *J. Air L.* 217; Sullivan, George, “The Codification of Air Carrier Liability by International Convention” (1936) 7 *J. Air. L.* 1; O’Brien, John, *International Law* (Routledge Cavendish, London, 2001), p.457 *et seq*, Goldhirsch, Lawrence, *The Warsaw Convention Annotated*, (Kluwer Law International, The Hague, 2000); McCormick, Barnes Warnock and Papadakis, M. P., *Aircraft Accident Reconstruction and Litigation* (Judges and Lawyers Publishing), p.377 *et seq* and Diederiks-Verschoor, *An Introduction to Air Law*, 8<sup>th</sup> ed. (Kluwer, Law International, Alphen aan den Rijn, 2006) pp.101 *et seq*.

<sup>175</sup> See Haanappel, PPC, *The Law & Policy of Air and Outer Space* (Kluwer Law International, London, 2003), pp.67-84 and Diederiks-Verschoor, *An Introduction to Air Law*, 8<sup>th</sup> ed. (Kluwer, Law International, Alphen aan den Rijn, 2006) pp. 170 *et seq*.



The need for such a regime has been recognised by others, such as Wollersheim,<sup>176</sup> Bhatt,<sup>177</sup> Hurtak,<sup>178</sup> Roberts<sup>179</sup> and Hashimoto.<sup>180</sup> There have been calls to adopt the regime in airspace to outer space, most notably by Hobe *et al* in the results of Project 2001+<sup>181</sup> and Collins. Of the two regimes in operation in airspace law under the Warsaw and Montreal Conventions, it was the former that was endorsed. Collins notes that the Warsaw Convention “seems an encouraging precedent for the legal innovation that is needed to make space activities commercially feasible.”<sup>182</sup> Schachter has noted the benefit of using this kind of instrument where specific obligations are envisaged and a high degree of compliance is sought.<sup>183</sup> The Warsaw Convention was ratified and brought into force in 1929 – at the dawn of the emerging

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<sup>176</sup> Wollersheim, “*Contributions Towards a Legal Framework for Space Tourism*,” 2nd International Symposium on Space Tourism, Bremen, April 21-23 1999 available at <[http://www.spacefuture.com/archive/considerations\\_towards\\_the\\_legal\\_framework\\_of\\_space\\_tourism.shtml](http://www.spacefuture.com/archive/considerations_towards_the_legal_framework_of_space_tourism.shtml)>

<sup>177</sup> Bhatt, “*International Aviation and Outer Space Law and Relations*,” (Asian Institute of Transport Development, New Delhi, 1996).

<sup>178</sup> Hurtak, “*Existing Space Law Concepts and Legislation Proposals*”, The Academy of Future Science, available at [http://www.affs.org/html/existing\\_space\\_law\\_concepts.html](http://www.affs.org/html/existing_space_law_concepts.html)

<sup>179</sup> Roberts, “Planning a Trip into Space? Bring your lawyer along for the Ride” (1998) *Ad Astra* (May/June), available at <<http://www.permanent.com/archimedes/tourismarticle.html>>

<sup>180</sup> Hashimoto, “*The Space Plane and International Space Law*,” available at <[http://www.spacefuture.com/archive/the\\_space\\_plane\\_and\\_international\\_space\\_law.shtml](http://www.spacefuture.com/archive/the_space_plane_and_international_space_law.shtml)>.

<sup>181</sup> Hobe, Stephan, Schmidt-Tedd, Bernhard and Schrogl, Kai-Uwe, (eds) *Project 2001+- Global and European Challenges for for Air and Space Law at the Edge of the 21st Century* (Carl Heymans Verlag, Köln, 2006), pp.217-230 and Hobe and Cloppenburg, “Towards a New Aerospace Convention? – Selected issues of Space Tourism,” (2004) 47 *Proc Coll L. Out Sp.* 377, See also O’Brien, Z.N., “Limitation of Liability and the Space Tourism Industry,” (2004) 47 *Proc Coll L. Out Sp.* 386.

<sup>182</sup> Collins, Patrick, “The Regulatory Reform Agenda in the Era of Passenger Space Transportation”, Proceedings of the 20<sup>th</sup> ISTS, paper no. 98-f-13, available at <[http://www.spacefuture.com/archive/the\\_regulatory\\_reform\\_agenda\\_for\\_the\\_era\\_of\\_passenger\\_space\\_transportation.shtml](http://www.spacefuture.com/archive/the_regulatory_reform_agenda_for_the_era_of_passenger_space_transportation.shtml)>

<sup>183</sup> Schachter, Oscar, “The Prospects for A Regime in Outer Space and International Organisations”, in Cohen (ed), *Law and Politics in Space* (Mc Gill University Press, Canada, 1974).

international commercial flight industry.<sup>184</sup> It regulated liability strictly and imposed the burden of liability on the carrier.<sup>185</sup>

### 7.2.1 *The Warsaw Convention*<sup>186</sup>

The Warsaw Convention applies to all international carriage<sup>187</sup> of persons, luggage or goods performed by aircraft for reward and to gratuitous carriage by aircraft performed by an air transport undertaking.<sup>188</sup> Warsaw will apply to carriage performed by the State or by legally constituted public bodies provided it falls within these conditions.<sup>189</sup> The carrier is obligated to deliver a passenger ticket<sup>190</sup> for carriage of persons, a luggage ticket for carriage of baggage<sup>191</sup> or an air consignment

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<sup>184</sup> In 1926, 5,800 passenger tickets were sold; by 1930, this figure had risen to 417,000. In 1941, over four million passengers were carried on US domestic carriers. Herpenheimer, T.A., *Turbulent Skies: A History of Commercial Aviation*, (John Wiley & Sons, Chichester, 1995) p. 22 and p.124.

<sup>185</sup> See *Kapar v Kuwait Airways Corp.* 845 F.2d 1100 (D.C. Cir. 1988); *Reed v Wiser* 535 F. 2d 1079 (2d Cir. 1977) (applicable to employees); *Baker v Landsell Protective Agency Inc.* 590 F. Supp. 165 (D.C. N.Y. 1984) (applicable to independent contractors); *In re Crash at Gander Newfoundland* 600 F. Supp. 1202 (D.C. Ky.1987) (applicable to companies engaged in the maintenance of airplanes and their component parts). See generally Goldhirsch, *supra*, pp.71-72.

<sup>186</sup> On the history of and background to the Convention, see Cha, Lincoln, "The Air Carrier's Liability to Passengers in International Law," (1936) 7 *Air L. Rev.* 25 at p. 33, Latchford, Stephen, "The Warsaw Convention and the C.I.T.E.J.A.," (1935) 6 *J. of Air L.* 79 and Sheinfeld, David, "From Warsaw to Tenerife: A Chronological Analysis of the Liability Limitations Imposed Pursuant to the Warsaw Convention," (1979-1980) 45 *J. of Air L. & Com.* 653.

<sup>187</sup> Article 1(2) defines 'international carriage' as meaning 'any carriage in which, according to the contract made by the parties, the place of departure and the place of destination, whether or not there be a break in the carriage or a transshipment, are situated either within the territories of two High Contracting Parties, or within the territory of a single High Contracting Party, if there is an agreed stopping place within a territory subject to the sovereignty, suzerainty, mandate or authority of another Power, even though that Power is not a party to this Convention.' On 'agreed stopping place' see *Grein v Imperial Airways* [1937] 1 K.B. 50 (C.A.); [1936] US Aviation Reports 211 and *Manohar t/a Vinamito Trading House v Hill & Delamain (Hong Kong) Ltd.* [1993] 2 HKC 342 at p. 345.

<sup>188</sup> Article 1(1) of the Warsaw Convention. See De Rode-Verschoor, Isabella, "Liability arising from Gratuitous Carriage by Air," (1966) 1 *Europees Vervoerrecht* 490.

<sup>189</sup> Article 2(1) of the Warsaw Convention.

<sup>190</sup> Article 3(1) of the Warsaw Convention. See *Chan v Korean Airlines* 490 U.S. 122. 109 S.Ct. 1676. 104 L.Ed.2d 113 and *Grey v American Airlines* 227 F.2d 282, 285 (2d Cir. 1955)[1950] US Av R 507.

<sup>191</sup> Article 4(1) of the Warsaw Convention.

note<sup>192</sup> but their absence, irregularity or loss of will not affect the existence, the validity of the contract of carriage nor the application of the Convention to them.<sup>193</sup> Under Article 17, the carrier is liable for “damage sustained in the event of the death or wounding of a passenger or any other bodily injury suffered by a passenger, if the accident which caused the damage so sustained took place on board the aircraft or in the course of any of the operations of embarking or disembarking”.<sup>194</sup> Damages for dependants are not provided for although the loss of a mother’s care is compensable.<sup>195</sup> Unlike COTIF recovery for any ‘necessary costs’ (i.e. transport of the body, burial or cremation) is also not provided for under Warsaw.<sup>196</sup>

The critical term ‘accident’ remains undefined in the Convention itself.<sup>197</sup> Clearly intentional misconduct is excluded although it is not limited to negligence and reckless conduct alone.<sup>198</sup> In *Air France v. Saks*<sup>199</sup> ‘accident’ was defined as an unexpected or unusual event or happening that is external to the passengers own internal reaction to the usual, normal and expected operation of the aircraft which causes injury.<sup>200</sup> The accident does not necessarily have to be a consequence of the

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<sup>192</sup> Article 5(1) of the Warsaw Convention.

<sup>193</sup> Article 3(2), Article 4(4) and Article 5(2) of the Warsaw Convention.

<sup>194</sup> See Goldhirsch, *supra*, p.69 *et seq* and McCormick, Barnes Warnock and Papadakis, M. P., *Aircraft Accident Reconstruction and Litigation* (Judges and Lawyers Publishing) p.378.

<sup>195</sup> *Preston & Anor v Hunting Air Transport Limited* [1956] 1 QB 454. On damages generally, See Goldhirsch, *supra*, pp.75-76.

<sup>196</sup> Article 27 of COTIF.

<sup>197</sup> See Abeyratne, Ruwantissa Indranath Ramya, *Aviation in Crisis*, (Ashgate Publishing ) pp.213-214; Spurway, M.J., *Aviation Law and Claims* (Witherby & Co. Ltd., London, 1992), pp.1-9, Larson, Irene, “Regime of Liability on Private International Air Law,” available at <http://www.rettid.dk/artikler/speciale-20020002.pdf>, Harakas, Andrew and Maggio, John, “Sacking Saks: Transformation of the Accident Requirement: Warsaw Convention Article 17,” (2001) 15 *Air & Sp. L.* and Diederiks-Verschuur, *An Introduction to Air Law*, *supra*, pp.128-131.

<sup>198</sup> *Carey v. United Airlines*, 255 F.3d 1044 (9th Cir. 2001).

<sup>199</sup> 470 U.S. 392, 84 L. Ed. 2d 289, 105 S. Ct. 1338 (1985), adopted from *DeMarines v. KLM Royal Dutch Airlines*, 580 F.2d 1193 (3d Cir. 1978) and *Warshaw v. Trans World Airlines, Inc.*, 442 F. Supp. 400 (E.D. Pa. 1977). See *Wallace v. Korean Air* 214 F.3d 293, 296 (2d Cir. 2000) (accident is an essential predicate for liability).

<sup>200</sup> See also *De Marines v KLM Royal Dutch Airlines* 433 F.Supp. 1047 (E.D.Pa.1977) where it was stated that “[a]n accident is an event, a physical circumstance, which unexpectedly takes place not according to the usual course of things. If the event, on board the airplane, is an ordinary, expected

operation of the aircraft.<sup>201</sup> It has been interpreted broadly and flexibly.<sup>202</sup> Any psychological injury or emotional distress<sup>203</sup> must be pleaded as an associated injury to physical damage owing to the interpretation of 'bodily injury'.<sup>204</sup> In addition, "normal travel procedures which produce an injury due to a passenger's peculiar internal condition are not 'accidents' within the meaning of Article 17".<sup>205</sup> Deep vein thrombosis caused by sitting for long periods is similarly not an accident as it is a consequence of a purely internal reaction.<sup>206</sup> Furthermore, the failure to warn of the risk of developing DVT does not ground any liability.<sup>207</sup> But a failure to comply with operational procedures resulting in injury can constitute an accident grounding liability under article 17.<sup>208</sup> A failure to assist a passenger who is having a negative

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and usual occurrence then it cannot be termed an accident. To constitute an accident, the occurrence on board the airplane must be unusual, an unexpected happening." See Abeyratne, *supra*, p. 213.

<sup>201</sup> *Gezzi v. British Airways PLC*, 991 F.2d 603, 605 n.4 (9th Cir. 1993).

<sup>202</sup> See *El Al Israel Airline v Tseng* 525 U.S. 155 (1999) and Clarke, Malcom, "Air Rage: Business Men Behaving Badly: Civil Liability for Uncivil Passengers (2001) *LMCLQ* 369.

<sup>203</sup> See generally Alldredge, J. Brent, "Continuing Questions in Aviation Liability Law: Should Article 17 Be Construed to Encompass Physical Manifestations of Emotional and Mental Distress?" (2002) 67 *J. Air L. & Com.* 1345.

<sup>204</sup> *Carey v. United Airlines*, 255 F.3d 1044 (9th Cir. 2001). But see *Cie Air France v. Teichner* 39 *Revue Francaise de Droit Aerien* 243, 23 *Eur. Tr. L.* 102 (reported in French) where the Supreme Court of Israel allowed recovery for psychological injury sustained as a result of a terrorist hijacking. Contrast *Eastern Airlines, Inc. v. Floyd et al.* 499 U.S. 530; 111 S. Ct. 1489; 113 L. Ed. 2d 569; 1991 U.S. LEXIS 2222; 59 U.S.L.W. 4307; 91 *Cal. Daily Op. Service* 2740; 91 *Daily Journal DAR* 4413. See generally Mercer, A., "Liability of Air Carriers for Mental Injury under the Warsaw Convention" [2003] XXVI *Air & Sp. L.* 147.

<sup>205</sup> *Margrave v. British Airways* 643 F. Supp. 510, 512 (S.D.N.Y. 1986).

<sup>206</sup> *Scherer v. Pan Am. World Airways, Inc.* 54 A.D.2d 636, 387 N.Y.S.2d 580, 581 (App. Div. 1976); *Rodriguez v. Ansett Australia et al* 383 F.3d 914; 2004 U.S. App. LEXIS 18735, (US Court of Appeals, 9<sup>th</sup> Circuit, September 3<sup>rd</sup>, 2004, Tashima J.) and *Morris v KLM* [2002] AC 628. See Diederiks-Verschoor, *An Introduction to Air Law, supra*, pp.131-133, Haanappel, Peter, "Law and Aerospace Health Problems," [2002] XXVII *Annals of Air & Space Law* 327, at p.329 Clark, J.S. and Fulena, Udai, "Deep Vein Thrombosis – A New Risk Exposure Area?" [2001] XXVI *Air & Sp. L.* 218 and Tompkins, G.N., "DVT Litigation Update: 1<sup>st</sup> October 2004," [2003] XXVIII *Air & Sp. L.* 331.

<sup>207</sup> See also *Blansett v. Continental Airlines, Inc.*, F.3d , 2004 U.S. App. LEXIS 15120, 2004 WL 1627247 (5th Cir. Jul. 21, 2004), *rev 'g* 246 F. Supp. 2d 596 (S.D. Tex.2002).

<sup>208</sup> *Fulop v. Malev Hungarian Airlines*, 175 F. Supp. 2d 651 (S.D.N.Y. 2001) where the Court held that the flight crew's failure to divert the plane in accordance with normal operational procedure where the plaintiff had suffered a heart attack could constitute an accident *c.f.* *Abramson v. Japan*

internal reaction, such as an asthmatic attack, may also constitute an accident.<sup>209</sup> These aspects of the understanding of ‘accident’ are important if such a regime is to be applied to space law as they will ensure that the normal risks inherent in being in space and from spaceflight are excluded. A parallel may be drawn in this regard to DVT and to space sickness, both of which may be viewed as a risk consequent upon the mode of travel.

In relation to embarking and disembarking, in *Burke v Aer Lingus*,<sup>210</sup> Barr J noted that the terms have quasi-technical significance and the test to be applied was “when and where does the passenger enter the continuous control of the airline or its agent in connection with the particular flight, and when and where does he/she cease to be under that control after the flight has ended, i.e., when and where does the “close temporal and spatial relationship with the flight itself” begin and end”<sup>211</sup> This

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*Airlines Co.* 739 F. 2d 130 (3<sup>rd</sup> Cir 1984); *Mc Dowell v Continental Airways* 54 F Supp 1313 (SD Fla. 1999) and *Patel v. Air Canada* Docket No. 00-02168 (ND Cal, Sept 22, 2000). See also the position with regard to turbulence: Cimino, Francesco, “Air Turbulence Liability,” (1998-1999) 64 *J. of Air L. & Com.* 1163.

<sup>209</sup> *Husain v. Olympic Airways*, 116 F.Supp. 2d 1121 (N.D. Cal. 2000), *aff'd*, 316 F.3d 829 (9th Cir. 2002), *aff'd*, 157L. Ed. 2d 1146, 124 S. Ct. 1221 (2004) (failure to move passenger suffering from asthma from a seat near a smoking section, despite repeated requests resulting in a fatal asthmatic attack was assumed to be an accident though not dispositively determined). See also *Seguritan v Northwest Airlines* 454 N.Y.S.2d 994 (N.Y., 1982). See Cornett, Ann, “Air Carrier Liability under Warsaw: The Ninth Circuit Holds Failure to Act in the Face of Known Risk is An ‘Accident’ When Determining Warsaw Liability – Hussein v Olympic Airways,” (2003) 68 *J. Air L & Com* 163. Contrast *Abramsom v Japan Airlines Co.* 739 F.2d 130 (3d Cir. 1984) cert. denied 470 U.S. 1059.

<sup>210</sup> [1997] 1 ILRM 148.

<sup>211</sup> *Burke v Aer Lingus Plc* [1997] 1 ILRM 148. See also *Eileen Dick v American Airlines, Inc.* US District Court of Massachusetts Action No 05-10446-GAO, 12 March 2007 (where it was said, “a court must consider (1) the passenger’s activity at the time of injury, (2) his or her whereabouts when injured, and (3) the extent to which the carrier was exercising control. These factors – activity, location and control – as separate legs of a stool, but, rather as forming a single, unitary base.”), *MacDonald v Air Canada* 439 F.2d 1402 (1<sup>st</sup> Circ., 1971) (“if these words [operations of disembarking] are given their ordinary meaning, it would seem that the operation of disembarking has terminated by the time the passenger has descended from the plane by the use of whatever mechanical means have been supplied and has reached a safe point inside the terminal, even though he may remain in the status of a passenger of the carrier while inside the building.”) and *Adatia v Air Canada* [1992] P.I.Q.R 238

provision is suitable to apply to space activities involving space vehicles with HTOHL as well as VTOHL and VTOVL.

Article 18 imposes liability for destruction or loss to baggage, while Article 19 imposes liability for delay. The Convention further provides for defences for the carrier. A carrier may escape liability if he proves that he and his agents have taken all necessary measures to avoid the damage or that it was impossible for him or them to take such measures.<sup>212</sup> In the case of carriage of goods and luggage, the carrier is not liable if he proves that the damage was occasioned by negligent pilotage or negligence in the handling of the aircraft or in navigation and that, in all other respects, he and his agents have taken all necessary measures to avoid the damage.<sup>213</sup> While there is no logical difficulty in applying a similar principle to space tourism, it is unlikely that there will be extensive luggage due to the cost increase associated with weight. Although, liability for small items, such as urns, which may be brought up into space, but as it does not concern carriage of persons, it is outside the scope of 'luggage' or 'baggage' and on its own is subject to the law on bailment.

Whole or partial exoneration is available where contributory negligence is proved by the carrier.<sup>214</sup> Any provision tending to relieve the carrier of liability or to fix a lower limit than that laid down in the Convention is null and void<sup>215</sup> but severable from the rest of the contract. Under Article 25(1), the carrier is not entitled to avail himself of the provisions that exclude or limit his liability, if the damage is caused by his wilful misconduct.<sup>216</sup> The Convention imposes a two year limit on the initiation of proceedings.<sup>217</sup> Claims under Articles 18-24 regardless of how founded, may only be brought subject to the limitations and conditions set out by the Convention. However

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<sup>212</sup> Article 20(1) of the Warsaw Convention. See *Rugani v KLM* 4 Av. Cas. (CCH) 17257 (N.Y.C. Ct. 1954); Diederiks-Verschoor, *An Introduction to Air Law*, supra, pp.122-124.

<sup>213</sup> Article 20(2) of the Warsaw Convention.

<sup>214</sup> Article 21 of the Warsaw Convention. See *Chutter v KLM Royal Dutch Airlines Inc.*, 132 F.Supp. 611 (S.D.N.Y.1955).

<sup>215</sup> Article 23 of the Warsaw Convention.

<sup>216</sup> Article 23 further provides "or by such default on his part as, in accordance with the law of the Court seised of the case, is considered to be equivalent to wilful misconduct".

<sup>217</sup> Article 29 – the cause of action exists, the right to the remedy is extinguished.

under Article 24(2), in the cases covered by Article 17, the action, regardless of how founded, may only be brought subject to the limitations and conditions set out by the Convention., “without prejudice to the questions as to who are the persons who have the right to bring suit and what are their respective rights”. In *Sidu v British Airways*,<sup>218</sup> Lord Hope stated:

The intention seems to be to provide a secure regime, within which the restriction on the carrier’s freedom of contract is to operate. Benefits are given to the passenger in return, but only in clearly defined circumstances to which the limits of liability set out by the Convention are to apply. To permit exceptions, whereby a passenger could sue outwith the Convention for losses sustained in the course of international carriage by air, would distort the whole system, even in cases for which the Convention did not create any liability on the part of carrier. Thus the purpose is to ensure ... it is the provisions of the Convention which apply and that the passenger does not have access to any other remedies, whether under the common law or otherwise, which may be available within the particular country where he chooses to raise his action<sup>219</sup>

Therefore, if a claim arises under Article 17 against the carrier, no concurrent common law *remedy* exists. The passenger cannot maintain a separate claim at common law for any loss, injury or damage not covered by article 17 of the Convention.<sup>220</sup>

### 7.2.2 *The Montreal Convention*<sup>221</sup>

The Montreal Convention has the same scope as the Warsaw Convention: it applies to carriers, imposes liability for accidents, delay and loss/destruction of baggage. There are two main differences, punitive, exemplary or other non-

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<sup>218</sup> *Abnett v. British Airways Plc. (Scotland) and Sidhu v. British Airways Plc* [1997] AC 430 per Lord Hope.

<sup>219</sup> *Ibid*, at p.447F.

<sup>220</sup> *Abnett v. British Airways Plc. (Scotland) and Sidhu v. British Airways Plc* [1997] AC 430 per Lord Hope.

<sup>221</sup> See McCormick and Papdakis, *supra*, p.381 *et seq.*

compensatory damages are specifically excluded<sup>222</sup> and the compensatory scheme consists of two tiers rather than one. Article 17(1) of the Montreal Convention provides that the carrier is liable for damage sustained in case of death or bodily injury of a passenger upon condition only that the accident which caused the death or injury took place on board the aircraft or in the course of any of the operations of embarking or disembarking. However, under Article 21 the carrier is not permitted to exclude or limit its liability for damages arising under Article 17(1) not exceeding 100,000 SDR for each passenger. For damages above this arising under same, the carrier is not liable in excess of 100,000SDR unless the carrier proves that such damage was not due to the negligence or other wrongful act or omission of the carrier or its servants or agents; or such damage was solely due to the negligence or other wrongful act or omission of a third party.

### *7.2.3 Warsaw or Montreal Convention for Space Law?*

Warsaw clearly differs from the Montreal Convention in two ways. First, Warsaw provides financial capping of all no-fault based carrier liability; the Montreal allows for uncapped financial liability. Secondly, Warsaw is strict liability in nature (excluding harm for intentional acts); Montreal embraces both fault and no-fault based liability providing for negligence and strict liability. Third, defences are wider under Montreal: the carrier may carry the burden of proving they, their servants or agents were not negligent or that a third party was responsible and where established, they will escape liability in excess of the financial limit.

In light of these differences, which regime is to be preferred for spaceflight participants. Both regimes will shift the burden of liability away from the launching State of the *corpus iuris* and impose it on the carrier. However, one of the clearest arguments for imposing a Warsaw-style system is grounded in historical analogy. Warsaw was ratified in 1929, at the pioneer phase of the emerging industry. As Diederiks-Verschoor observes, as time went by and aviation began expanding on a

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<sup>222</sup> Article 29 of the Montreal Convention.



large scale, the Warsaw Convention was subject to repeated amendments and additions.<sup>223</sup>

However, at the time of its inception, the regime, with its financial caps on liability, which favoured carriers and its simple proof of accident necessary for plaintiff passengers, provided a means of protecting the industry from the full scope of liability that may have crippled it and of balancing the needs of passengers in eventual litigation with the liability of the carrier. The simplified proofs needed in a strict liability regime shortened cases and promoted settlement, reducing costs on all sides. Nonetheless, the balance struck is clearly not an even one being heavily weighted in favour of the carrier. Under the Montreal regime, this critical balance is weighted more evenly with passengers losing the benefit of simplified proofs under a negligence system but with prospects of uncapped recovery. Indeed, the principal reason for establishing Montreal was “based on the fact that limitations of liability for death or injury of passengers as contained in the Warsaw system were increasingly questioned, in particular by the courts of several countries”.<sup>224</sup>

The argument in favour of Warsaw for space passengers is grounded in the fact that the current space industry is also in its pioneer phase and therefore in this critical stage of the industry’s development where unlimited liability could cripple the industry, the equivalent regime during the aviation industry should be adopted – one that strikes a balance between passengers and carriers weighted in favour of the latter.<sup>225</sup> Certainly, even a Warsaw-style regime would afford greater protection of passenger rights than the current regimes in Virginia and Florida where mandatory waivers exclude the possibility of recovery for negligence even in the event of death or injury. The preference of Montreal however is grounded in the historic-legal

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<sup>223</sup> Diederiks-Verschoor, *An Introduction to Air Law*, 8<sup>th</sup> ed., (Kluwer Law International, Alphen aan den Rijn, 2006), p.101. These amendments included the Hague Protocol of 1955, the Guadalajara Convention of 1961, Four Montreal Protocols of 1975.

<sup>224</sup> Diederiks-Verschoor, *An Introduction to Air Law*, supra, pp.102-103.

<sup>225</sup> See Sand, Peter, “Air Passenger’s Limitation of Liability and Air Passenger’s Accident Compensation under the Warsaw Convention,” (1961-2) 28 *J. of Air L & Com.* 260, p. 264 on the perception of limitations of liability.

development that has occurred since Warsaw that suggests that Warsaw may not now be suitable for application to space tourism.

The two most significant developments following the ratification of Warsaw is the development of both the law on duty of care and consumer law. Duty of care was still in its embryonic stage of life during the discussions giving rise to the Warsaw Convention. This was critical to the development of the scope of negligence as it is the 'control devise whereby the courts may, as a matter of law, limit the range of liability within what they consider to be reasonable bounds'.<sup>226</sup> Remoteness also has its role in limiting liability and developed as a factor applicable to the consideration of the duty of care.<sup>227</sup> Both concepts fulfill a vital function of integrating broad social concepts into liability limitation assessment. As McMahon and Binchy note:

When... a court says that the defendant should not be liable because he or she was not under a duty of care towards the plaintiff, this really means nothing more than that, having regard to broad considerations of social policy, the court is of the opinion that it would not be wise to require the defendant and others similarly acting, to compensate persons injured by that conduct. The court thus fashions the duty of care concept and specifies its scope with the simple aim of accomplishing social goals. The value system of which the duty of care is part is one of limited economic and utilitarian horizons rather than of nobler ethical pedigree.<sup>228</sup>

The 'conceptual scaffolding' for duty of care was not established in 1929. While Cardozo J imposed liability between a manufacturer and customer in the New York Court of Appeal decision of *MacPherson v Buick Motor Co.*<sup>229</sup> in 1916 due to the duty on the manufacturer and the foreseeability of harm, it was limited in its

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<sup>226</sup> McMahon, Brian and Binchy, William, *The Law of Torts*, 3<sup>rd</sup> ed. (Butterworths, Dublin, 2000), p. 115.

<sup>227</sup> See generally, Fleming, "Remoteness and Duty: The Control in Liability for Negligence," (1953) 31 *Can BR* 471.

<sup>228</sup> McMahon and Binchy, *supra*, pp.116-117.

<sup>229</sup> 217 N.Y. 382, 111 N.E. 1050 (1916).

application to a ‘thing of danger’ and evolved as an exception to mitigate the full rigors of privity.<sup>230</sup> Some early cases spoke of ‘duty’,<sup>231</sup> most notably *Palsgraf v. Long Island Railroad*,<sup>232</sup> but the architecture underpinning the concept truly came into its own in the seminal case of *Donoghue v Stevenson*<sup>233</sup> where Lord Atkinson stated:

The rule that you are to love your neighbour becomes in law, you must not injure your neighbour; and the lawyer's question, “Who is my neighbour?”, receives a restricted reply. You must take reasonable care to avoid acts or omissions which you can reasonably foresee would be likely to injure your neighbour. Who, then, in law, is my neighbour? The answer seems to be—persons who are so closely and directly affected by my act that I ought reasonably to have them in contemplation as being so affected when I am directing my mind to the acts or omissions which are called in question.

The concept of ‘neighbourhood’ or proximity, coupled with reasonable foreseeability as the criterion of remoteness, completed the foundational understanding of duty of care.

The relationship between remoteness and proximity relation to duty of care was developed and subsequently formulated in a broad two step test in *Anns v Merton London B.C.*<sup>234</sup> Courts have since moved away from the conceptual approach<sup>235</sup> to duty of care to one that is incremental in nature.<sup>236</sup> The rejection of the test was

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<sup>230</sup> The early approach is evidenced in *Winterbotton v Wright* 10 M. & W. 109, *Longmeid v Holiday* 6 Ex. 761 and *Mullen v. Barr & Co.* 1929 S. C. 461.

<sup>231</sup> *George v. Skivington* L. R., 5 Ex. 1; *Heaven v. Pender* 11 Q. B. D. 503.

<sup>232</sup> 162 N.E. 99 (N.Y. 1928) (duty of care to persons within the foreseeable risk of harm created by the negligent act). See also *Dominion Natural Gas Co. v. Collins and Perkins* [1909] A.C. 640 and *Bates v. Batey & Co.* [1913] 3 K.B. 351.

<sup>233</sup> [1932] AC 562.

<sup>234</sup> [1978] A.C. 728.

<sup>235</sup> The retreat from *Anns* is evidenced in *Peabody Fund v. Sir Lindsay Parkinson* followed [1985] A.C. 210 (H.L.), *Yuen Kun-yeu v. A.G. Hong Kong* [1987] 2 All E.R. 705 (P.C.) and *Caparo Industries plc v. Dickman* [1990] 2 AC 605.

<sup>236</sup> See *Sutherland Shire Council v. Heyman* (1985) 157 C.L.R. 424, at p.481, *Glencar v Mayo County Council (No. 2)* [2002] 1 I.R. 84. *Anns* itself was overruled in *Murphy v Brentwood DC* [1991] 1 AC 398. See generally: McGarrity, L., “The Rise and Fall of *Anns*,” (1987) 137 *New Law Journal* 794 and

owing to its broadness as Keith LJ observed it “put the law of negligence into a state of confusion defying rational analysis”. In its current form, duty of care forms a three step test that continues to balance foreseeability, proximity and social policy, including the desire to curb litigiousness coupled with the need for a rational, analogical development of the law. The test has been defined as follows:

What emerges is that in addition to the foreseeability of damage, necessary ingredients in any situation giving rise to a duty of care are that there should exist between the party owing the duty and the party to whom it is owed a relationship characterised by the law as one of “proximity” or “neighbourhood” and that the situation should be one in which the court considers it fair, just and reasonable that the law should impose a duty of a given scope upon the one party for the benefit of the other.<sup>237</sup>

These three hurdles impose a high burden of proof upon potential plaintiffs. This tool for limiting liability had not developed to this extent during the negotiations relating to Warsaw. So while liability may have been imposed under the exception to privity by viewing an aircraft as ultra-hazardous or an inherently dangerous thing, the three step test was not in place to apply to liability outside this exception. Furthermore, this exception has been disapplied to aircraft since 1987.<sup>238</sup> While a plaintiff pre-Warsaw could have attempted to rely on *res ipsa loquitur*, it would be of limited use where *vis major* was raised.<sup>239</sup> Warsaw provided the basis for a good cause of action against the carrier<sup>240</sup> and precluded exclusion clauses that would impose the burden of insuring against the risk entirely upon the passenger. In the absence of the Warsaw Convention, passengers would have relied entirely on their contract of carriage

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O’Dair, Richard, “*Murphy v Brentwood DC: A House with Firm Foundations?*” (1991) 54 *MLR* 561 (who is critical of the court’s judgment for its failure to adequately address policy matters).

<sup>237</sup> *Caparo Industries Plc v. Dickman* [1990] 2 A.C. 605, *per* Lord Bridge at pp.617-618. *Cp* Keane CJ in *Glencar v Mayo County Council* [2002] 1 I.R. 84.

<sup>238</sup> *Crosby v Cox Aircraft Company of Washington* 746 P.2d 1198 (Wash. 1987).

<sup>239</sup> See Weeks, *supra*, p.138.

<sup>240</sup> *Benjamin v British European Airways* 572 F.2d 913 (2<sup>nd</sup> Cir. 1978) overruling *Komlos v Air France* 11 F. Supp. 393 (D.C. N.Y. 1952), 209 F. 2d 436 (2<sup>nd</sup> Cir 1953) and *Noel v Linea Aeropostal Venezolana* 144 F. Supp 359 (D.C. N.Y. 1956), 355 U.S. 907 (1957); UK Carriage by Air Act 1962, *Abnett v. British Airways Plc. (Scotland) Sidhu v. British Airways Plc* [1997] AC 430 *per* Lord Hope, and Australia’s Civil Aviation (Carrier’s Liability) Acts 1959-1973. See Goldhirsch, *supra*, p.70.

complete with exclusion clauses that would have precluded their claim. The same result is demonstrated in similar passenger claims against railway carriers in contract containing a prominent exclusion clause.<sup>241</sup>

Furthermore, passengers whose tickets were purchased for them by a third party were unable to claim under contract due to privity. Plaintiffs were faced with establishing a cause of action in negligence arising independently of the contract in such circumstances. Only the development of a theory of proximity or neighbourhood could resolve this issue. Plaintiffs who received and accepted offers of gratuitous, who had no contract in place were in a worse position. In this way, Warsaw was enlightened for its time and the trade-off in favour of providing the cause of action of limiting recovery does not appear as harsh in its historical context than in modern times. However, while the concept of duty of care continues to evolve, the steps taken in *Donoghue* and in *Anns*, provided scope for imposing a duty of care on the carrier independent of the contract but imposing such a duty was not permitted by the Warsaw Convention owing to Article 24(2).

In contrast, the Montreal Convention was agreed when the understanding of duty of care was elaborated and understood both as capable of application between carrier and passenger, had it not been precluded by Warsaw and as a substantive and procedural limitation upon liability in negligence cases generally. In that sense, permitting claims for negligence did not seem an unduly onerous burden for carriers to now bear.

A counter argument to this is that the Montreal Convention takes account of the evolution of the commercial aviation industry and its capacity to bear the burden of such claims. However, such an argument ultimately ignores the legal development that occurred in the same space of time that imposes equally limitations on recovery in negligence claims. It is true that extensive claims against an industry could cripple

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<sup>241</sup> *Thompson v LM & S Rly* [1930] 1 K.B. 41.

<sup>241</sup> *Parker v SE Railway* (1877) 2 C.P.D. 416; 46 LJQB 768, 36 LT 540; 41 JP 644; *McNally v Lancs & New York Railway* (1880) 8 L.R. (Ir.) 81; *Ryan v Great Southern and Western Railway* (1898) 32 I.L.T.R. 108; *Pyman v H & B Railway* [1915] 2 K.B. 729 (C.A.); *Thompson v LMS Railway* [1930] 1 KB 41 cf *Taylor v Manchester, Sheffield and Lincolnshire Railway Co.* [1895] 1 Q.B. 134, 11 T.L.R. 27.

it but in relation to the space industry the financial cost of risk actualisation is borne by the insurance sector due to the mandatory insurance requirements of national law. While increased premiums may result for the industry participant as a consequence of successful suits/settlements and those unable to pay such higher premiums being forced out of the market, the premium in doing so provides a limit on the level of those able to engage in the activity. Thus it has the potential to regulate activity levels in line with the levels of accidents resulting in a claim. Furthermore, those industry participants that are unable to raise their behaviour to the accepted standard of care should yield their place or part of their place in the market to those who can, according to the usual rigors of the market. Indeed, in relation to the private commercial space industry, both Warsaw-and Montreal-style approaches will result in the end cost of accidents being regulated by the insurance sector, the difference is a matter of degree.

A second reason for favouring Montreal over Warsaw is again grounded in subsequent legal developments since 1929. Consumer law has had a significant impact at the national level in the regulation of contracts between such parties and businesses and represents a movement away from the strict freedom to contract theory favoured most particularly by common law states until relatively recently. The history of consumer law in the EC has been examined in Chapter IV and the consideration of spaceflight participants as consumers has also been addressed. The development of consumer law succeeds the ratification of Warsaw and pre-dates to a substantial degree the ratification of Montreal. In light of consumer law developments, it is not difficult to perceive the doubts national courts had in applying the limitations in Warsaw. The Montreal system in having the potential to impose financially unlimited liability provides a better balance between passenger and carrier in a legal system with consumer-oriented laws and a paternalism directed to economically weaker parties.

One final reason for preferring Montreal over Warsaw is pragmatic rather than legal nature. The primary objection to Warsaw in later years was justifying the financial capping<sup>242</sup> but negotiating increased caps proved challenging. There is an inherent

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<sup>242</sup> See Clare, John, "Evaluation of Proposals to Increase the 'Warsaw Convention' Limit of Passenger Liability," (1949) 18 *J. of Air L. & Com.* 53 and Jeffrey, Ray B., "The Growth of American Judicial

difficulty in assigning one financial cap to apply in all countries without regard to varying standards of living and national wage levels.<sup>243</sup> Providing both limited and unlimited liability may also be viewed as a compromise.

For these reasons, the Montreal system is favoured over the Warsaw system, though in either case the party rendered liable remains the carrier and, indirectly, their insurer.

## 8. Conclusion

Liability at international level is regulated by Art.VII of the Outer Space Treaty and the provisions of the Liability Convention. The latter is victim-oriented and with a clear compensatory objective. The scope of damage covered by Art.I of the Convention is quite wide covering loss of life, personal injury or other impairment of health; or loss of or damage to property. Owing to the use of “impairment of health” it is likely that psychological injury to natural persons of a State may come within the scope of recoverable damage. It is probable ‘damage’ also includes moral and indirect damage. However, the failure to disseminate remote sensing data is unlikely to be included as the Convention requires damage to be caused by a space object.

States are strictly liable for damage caused by a space object to the surface of the earth or to aircraft in flight. Liability for damage to aircraft in flight, i.e., in airspace is also subject to strict liability but liability for damage caused to a space object by a space object in airspace is fault-based. Where such harm arises as a result of a collision of space objects from different states, the theory remains the same. The

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Hostility Towards the Liability Limitations of the Warsaw Convention,” (1982-3) 48 *J. of Air L. & Com.* 805. Contrast Parker, J. Brooks, “The Adequacy of the Passenger Liability Limits of the Warsaw Convention of 1929,” (1947) 14 *J. Air L. & Com.* 37. See also IATA’s Intercarrier Agreement on Passenger Liability which by-passed the limits set by Warsaw: Atherton, Trevor, “Unlimited Liability for Air Passengers: The Position of Carriers, Passengers, Travel Agents and Tour Operators Under the IATA Passenger Liability Agreement Scheme,” (1997-8) 63 *J. of Air L. & Com.* 405.

<sup>243</sup> Awori, Meri, “*Montreal Convention 1999: An Overview*,” available at <  
<http://astlaw.com/Awori/Awori.pdf>>

launching state will be held liable under international space law. This is so regardless of whether jurisdiction or ownership over the space object passes out of the hands of the State or its nationals and into the hands of another at the time of the event giving rise to the damage. The term 'launching state' is defined widely and includes the State from whose territory or facility the launching takes place as well as the State that launches the object or procures its launch. International intergovernmental organisations may also agree to become bound by the Convention and three have done so ESA, EUMETSAT and EUTELSAT.

While liability may be strict under the Convention, it is possible to escape liability where the claimant State fails to demonstrate a constituent proof such as causation or, if necessary, fault on the part of the launching State(s). Contributory negligence may operate as a complete or partial defence. Additionally, the claim may fall outside the terms of the Convention or may be time-barred. The claimant state includes the State who suffered damage or the State whose natural or legal persons suffered damage.

Compensation is available under the Convention where a successful claim is made but the Convention does not envisage non-compensatory recovery, such as punitive damages. The procedure for making a claim is set out within the Liability Convention and is the most comprehensive in the corpus iuris. The claimant must first pursue a resolution through diplomatic channels, failing this they may elect to pursue their claim under national courts or under the Convention subject to a Claims Commission. The decision of the Commission is non-binding and dependant on the good will of the States involved. No enforcement procedure is therefore in place and it may be doubted if in these circumstances if the Convention fulfils the need it recognises in its preamble for prompt compensation for victims.

Two difficulties arise under this regime, first liability always falls on the launching state and cannot be shifted from one launching state to a non-launching state even where the ownership and jurisdiction over the space object may be shifted from one State Registry to another. A breach may give rise only as a result of a failure to supervise. Thus the law does not reflect a climate where space objects may be and are entirely held by private corporations and transferred or sold to other private entities of other States. The second difficulty with the current system is that there is



no provision for recovery by injured parties where the parties are individuals. There is the possibility that the problems could be resolved through the application of general principles of international law, but while this has the potential to address the first issue, it will not address the second. Cosmos 954, the sole claim made to date relying on the Liability Convention, was settled but does illustrate the possibility of coupling the *corpus iuris* and general principles in a claim.

While the current system has its merits in placing the burden of liability on States, there is both security and certainty, it is submitted that a regime similar to the Rome Convention should be adopted in international space law as a parallel regime which imposes liability on the operator for damage on the surface of the earth. In relation to liability between parties engaged in activities, it is submitted that with regard to space tourists, a liability regime similar to the Montreal Convention 1999 should be adopted. This represents a better fit with the current law on the scope of duty of care and the evolution of consumer law.

## **Part II: Environmental Liability**

### **9. Introduction**

This part will examine the current legal position with regard to environmental damage caused by human space activities to earth, outer space and other celestial bodies. It will also consider the relevant applicable principles, the reasons for protecting the space environment and the possible legal responses in the absence of evolved scientific solutions to dealing with environmental harm. The focus is on such harm as caused by humans rather than on non-man-made environmental hazards. Examples of outer space environmental problems include space debris, including radiated debris and exobiological contamination. Liability may arise for space debris where it causes harm to natural or legal persons under national or international law or gives rise to a breach of an international obligation and the exposure to liability indirectly benefits the environment, there are separate legal provisions in the *corpus*

*ius* and principles in environmental law which apply to the regulation of the space environment that merit separate consideration. First the definitions of pollution and damage will be considered, then the reasons for regulation and finally the current law will be assessed in light of increased commercialisation.

## **10. Harm, Damage and Pollution**

There are several definitional parameters that may be used in relation to the environment for legal purposes, on the one hand there is environmental harm and damage and on the other, pollution. Both of these will be considered in turn below with reference to the space environment. Space debris will be considered as an example of pollution.

### **10.1 Environmental Harm and Damage**

The difficulties in relation to defining these terms were summed by Viikari:

Although the various instruments of international law regularly and increasingly speak about ‘environmental protection’, ‘environmental damage’ and so on, they hardly ever even try to define properly what this ambiguous ‘environment’ is. Even where definitions exist, they vary from treaty to treaty. Furthermore, even those international instruments that provide some sort of a definition of ‘environment’ usually prefer a sectoral approach by limiting their definitions explicitly for the purposes of that particular instrument.<sup>244</sup>

The ILC’s Draft Principles on the Allocation of Loss in the Case of Transboundary Harm arising out of Hazardous Activities<sup>245</sup> define the environment as “including “natural resources, both abiotic and biotic, such as air, water, soil, fauna and flora

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<sup>244</sup> Viikari, Lotta, *The Environmental Element in Space Law: Assessing the Present and Charting the Future*, (Martinus Nijhoff Publishers, Leiden, 2008), p.10.

<sup>245</sup> [2006] II *Yearbook of the International Law Commission*, Part Two.

and the interaction between the same factors, and the characteristic aspects of the landscape.”<sup>246</sup> Article 2(10) of the Convention on Civil Liability for Damages Resulting from Activities Dangerous to the Environment 1993<sup>247</sup> defines the environment in similar terms but also includes property which forms part of cultural heritage. While neither specifically reference outer space or celestial bodies, the use of the term ‘including’ implies that the term is not limited exclusively to those aspects set forth.

Transboundary damage or international environmental harm refers to border-crossing damage *via* land, water or air in dyadic state.<sup>248</sup> The ILC’s Draft Articles on the Prevention of Transboundary Harm by Hazardous Activities favour the use of ‘harm’ rather than damage and harm caused “to persons, property or the environment” falls within its scope.<sup>249</sup> However, “transboundary harm” is used in the Draft Principles albeit defined in terms of harm. It includes that harm which is caused “in the territory of or in other places under the jurisdiction or control of a State other than the State of origin, whether or not the States concerned share a common border”.<sup>250</sup> The “State of origin” for these purposes denotes the State, in the territory or otherwise under the jurisdiction or control, in which the activities are planned or are carried out.<sup>251</sup>

By integrating the issue of ‘state control’ rather than solely on territory, the definitions are sufficiently broad to apply to space objects in orbit or outer space or on the Moon or other celestial bodies. On the question of damage, Sands proffers a wide scope of application to the word ‘as including damage that to flora, fauna, soil water, climatic factors, material assets such as archaeological and cultural heritage and the landscape and environmental amenity and the interrelationship between all

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<sup>246</sup> Principle 2(b).

<sup>247</sup> ETS no. 150.

<sup>248</sup> Hanqin, Xue, *Transboundary Damage in International Law*, (CUP, 2003), p.3.

<sup>249</sup> Art. 2(b) of the Draft Articles on the Prevention of Transboundary Harm by Hazardous Activities, Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 10 (A/56/10). See generally, Kiss, Alexandre and Shelton, Dinah, *International Environmental Law*, 3<sup>rd</sup> ed., (Transnational Publishers Inc., New York, 2004), p.331 et seq.

<sup>250</sup> *Ibid*, Art. 2(c).

<sup>251</sup> *Ibid*, Art. 2(d).

these elements.<sup>252</sup> The ILC's draft principles<sup>253</sup> include the phrase 'significant damage' caused to persons, property or the environment and is stated to include loss of life or personal injury, loss of, or damage to, property, including property which forms part of the cultural heritage, loss or damage by impairment of the environment, the costs of reasonable measures of reinstatement of the property, or environment, including natural resources and the costs of reasonable response measures.<sup>254</sup> "Transboundary Damage" is defined as damage caused to persons, property or the environment in the territory or in other places under the jurisdiction or control of a State other than the State of origin.<sup>255</sup> While either term may be used, the central question in relation to liability is whether the particular environmental harm gives rise to a legal remedy.

Hanqin restricts environmental damage to that which involves a physical relationship between the activity concerned and the damage caused, human causation, a certain threshold of severity that calls for legal action and the transboundary movement of harmful effects.<sup>256</sup> However, there may be no cross-border element to environmental damage in outer space or to the lunar environment, as there is no sovereignty in space or on celestial bodies. Therefore this final element is not a requisite in the form set out by Hanqin to environmental harm in outer space or to celestial bodies. The cross-border element may be replaced by the crossing of the quasi-territoriality established by the *corpus iuris* with regard to installations and space objects or a combination of quasi-territoriality and borders as traditionally understood in the case of damage caused by a space object to territory in airspace or on the surface of the earth. The first three elements however are applicable to 'harm' occurring to the space environment. It may also be that not all forms of damage give rise to liability.

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<sup>252</sup> Sands, Phillippe, "Liability for Environmental Damage" in Lin, Sun and Kurukulasuriya, Lal (eds), *UNEP's New Way Forward: Environmental Law and Sustainable Development* (UNEP, Nairobi, 1995), 73 at 86fn.1.

<sup>253</sup> [2006] II *Yearbook of the International Law Commission*, Part Two.

<sup>254</sup> Principle 2(e).

<sup>255</sup> Principle 2(e).

<sup>256</sup> Hanqin, *supra*, at pp.4-10.

However, it has been noted that international legal restraints can be an important part of the response.<sup>257</sup>

## 10.2 Pollution

There are two understandings of pollution<sup>258</sup> and the definition of ‘polluter’ hinges on the understanding adopted. This definition is critical therefore to the argument in favour of a polluter-pays system of liability for environmental damage. In one sense, pollution exists when an emission exceeds a stated standard set for the particular environment by a public authority. Therefore not every emission will give amount to pollution, only those that violate an established norm.<sup>259</sup> This view of pollution is seen in the OECD’s Recommendation 75/436. The space debris mitigation guidelines, detailed below, are evidence of the existence of such norms. The second theory determines whether pollution exists or not by reference to the impact of the particular discharge/emission in question on the environment or its victims. Therefore, any discharge/emission regardless of how minimal may constitute pollution. To this, further distinctions may be made between contaminants and pollutants. The former refer to the presence of foreign substances while the latter embraces only such contaminants that cause damage. It is this latter view that is favoured more in international law.

While both the 1972 Stockholm Declaration and the 1992 Rio Declaration use ‘pollution’, they contain no definition. The OECD definition of pollution is:

the introduction by humankind, directly or indirectly, of substances or energy into the environment resulting in deleterious effects of such a

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<sup>257</sup> Schacter, Oscar, “The Emergence of International Environmental Law,” [1991] 44 *Journal of International Affairs* 457.

<sup>258</sup> Springer, L., “Towards a meaningful concept of pollution in international law,” [1977] 26 *ICLQ* at 531. Springer considers any alteration of the existing environment, interference with other uses of the environment or exceeding the assimilative capacity of the environment as pollution.

<sup>259</sup> See Kramer, Ludwig, *The Polluter Pays Principle in Community Law: The Interpretation of Article 130r of the EEC Treaty*, in *Focus on European Law* 2nd ed., (Graham and Trotman, London, 1997), 248.

nature as to endanger human health, harm living resources and ecosystems, impair amenities or interfere with other legitimate uses of the environment.<sup>260</sup>

This definition includes solids, liquids and gases as well as vibrations and noise<sup>261</sup> and can be applied to man-made space debris as well as to launching activities. It is oriented to maintaining human use and consumption of environmental resources<sup>262</sup> – a matter of particular importance in relation to space vis-à-vis the GEO. Unlike the 1982 UNCLOS definition, the OECD understanding of pollution does not embrace the probable risk of damage.<sup>263</sup> ‘Transboundary pollution’ is defined in terms of jurisdiction as “any intentional or unintentional pollution whose physical origin is subject to, and situated wholly or in part within the area under, the national jurisdiction of one State and which has effects in the area under the national jurisdiction of another State.”<sup>264</sup>

While the terms ‘pollution’, ‘harm’ and ‘damage’ are not interchangeable, both senses of ‘pollution’ provides assistance for understanding when damage reaches a threshold sufficient to give rise to liability.<sup>265</sup> Definitions of pollution specific to certain environmental mediums have been developed, for example, in relation to the marine environment. There is to date no specific space-centric definition of ‘pollution’ Much focus is directed to defining and understanding, both legally and scientifically, space-specific problems such as space debris and the problem of GEO

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<sup>260</sup> OECD, *Recommendation for the Implementation of a Regime of Equal Right of Access and Non-Discrimination in Relation to Transfrontier Pollution*, C(77)28(Final), adopted May 17, 1977, Annex (c).

<sup>261</sup> See Kiss, Alexander and Shelton, Dinah, *Manual of European Environmental Law*, CUP, 6. See also Larsson, Marie-Louise, “Legal Definitions of the Environment,” [1999] 38 *Scandinavian Studies in Law* 156, 158.

<sup>262</sup> Larsson, *supra*, p.159.

<sup>263</sup> Article 1(4) of the 1982 UN Convention on the Law of the Sea, (1982) 21 ILM 1261 (1982) as amended (1994)33 ILM 1309.

<sup>264</sup> OECD, *Recommendation for the Implementation of a Regime of Equal Right of Access and Non-Discrimination in Relation to Transfrontier Pollution*, C(77)28(Final), adopted May 17, 1977, Annex (b).

<sup>265</sup> Sands, *supra*, 1995, pp 633-634.

clutter, the use of nuclear power and more recently, the protection of cultural property in outer space. A source-focused approach, similar to that in maritime law, has been adopted since the coming into force of the *corpus iuris* which was directed to the locus of harm. In adopting a sectoral approach, space debris, one of the key issues, requires examination as it clearly falls within the scope of ‘pollution’.

### 10.2.1 Space Debris<sup>266</sup>

Traveling at speeds of up to 7.8km per second, space debris poses a significant threat to spacecraft. The number of objects in Earth orbit has increased steadily; today the US Department of Defense (DOD) is using the Space Surveillance Network to track more than 19,000 objects approximately 10 centimeters in diameter or larger. It is estimated that there are over 300,000 objects with a diameter larger than one centimeter, and millions smaller.<sup>267</sup>

Space debris has been described as “the greatest hazard facing human activities in outer space”.<sup>268</sup> Indeed because of the remarkable high orbital velocities of up to 30,000 kph, in LEO, debris as small as 10cm in diameter “carries the kinetic energy of a 35,000kg truck travelling at up to 190 kph.”<sup>269</sup> Objects with lower velocities in GEO, can move at approximately 1,800 kph. As West *et al* observe, “[n]o satellite can be reliably protected against this kind of destructive force and it is considered to be impractical to shield against objects bigger than one centimeter.”<sup>270</sup>

Viikari defines ‘space debris’ as ‘a general term referring to all tangible man-made materials in space other than functional space objects’.<sup>271</sup> It encompasses both solids

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<sup>266</sup> See generally Viikari, *supra*, p.31 *et seq.*

<sup>267</sup> West, Jessica (ed) et al, *Space Security 2009* (SSO, Ontario, 2009), p.9.

<sup>268</sup> See generally, Baker, Howard, *Space Debris*, (Kluwer Law International, Utrecht, 1989), p.1.

<sup>269</sup> *Space Security 2009*, p.25

<sup>270</sup> *Space Security 2009*, p.25.

<sup>271</sup> Viikari, *supra*, p.31.

(e.g. non-operational satellites<sup>272</sup>) and liquids (e.g. leaking fuel and coolant droplets<sup>273</sup>). Although the term is not used with the *corpus iuris*, 'radioactive debris' in outer space, on the Moon or other celestial bodies will come within the regime of the Nuclear Test Ban Treaty of 1963.<sup>274</sup> As examined previously, the definition of a space object includes the 'component parts'<sup>275</sup> and so man-made space debris may come within the legal definition of a space object.<sup>276</sup> Therefore, man-made space debris is subject to the same rules as other space objects with regard to jurisdiction, ownership and liability as a fully working and complete space object. This is so regardless of whether the component part separated from the main body of the space object intentionally or accidentally.

However, application of the rival theories of functionalism<sup>277</sup> and spatialism<sup>278</sup> may result in a different definitional outcome when applied to a component part that separates from a space object within airspace, particularly where this is intentional, for example in the case of the booster rockets of the space shuttle or of the Ariane V launcher. Under the functional theory, the component parts as elements of a space object that is intended for outer space activity are covered by the law of outer space and are under the registration system of the relevant national space regulatory authority. This is so even if a particular component part is never intended to reach outer space itself. This is borne out by practice.

The AST regulates the launch licences of the shuttle in its entirety. In a more marked example, White Knight, the vehicle used to bring *SpaceShipOne* to the correct pre-rocket altitude is regulated by the AST, although it is physically an independent craft

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<sup>272</sup> IAA, *Positional Paper on Orbital Debris*, 2001, p.3

<sup>273</sup> Baker, Howard A., "Liability Caused in Outer Space by Space Refuse," (1988) XIII *Ann. Of Air & Sp. L.* 183, 208 and Viikari, *supra*, p.31.

<sup>274</sup> See Reynolds and Merges, *Outer Space: Law and Policy* 2<sup>nd</sup> ed. (Westview Press, Oxford, 1997) pp.52-61.

<sup>275</sup> Art. 1(d) of the Liability Convention; Art. 1(b) of the Registration Convention. See Ch.II, s.2.1.

<sup>276</sup> Mirmina, Stephen A., "The Ballistic Missile Defence System and the Outer Space Environment," [2005] 31 *J. of Space L* 287, 303. But see Jasentuliyana, *infra*, who queries whether fragmentation of space debris and micro-particulate matter may properly be considered 'space objects' under the Liability Convention, p.142.

<sup>277</sup> See Ch.I, s.4.1.1.

<sup>278</sup> See Ch.I, s.4.1.2.



from *SpaceShipOne*, is not intended for outer space activity nor capable of it, possessing as it does only air-breathing engines. In contrast, a spatialist approach would apply air law to a vehicle such as White Knight which remains within legally accepted boundaries of airspace. Current customary international space law would support the former rather than the latter.<sup>279</sup>

The problem of space debris has been recognised by the UN as an issue of concern to all nations.<sup>280</sup> The Scientific and Technical Sub-Committee was mandated to consider space debris and continues to do so<sup>281</sup> having published its technical report a decade ago.<sup>282</sup> The Committee defines space debris “as all man-made objects, including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional.”<sup>283</sup> As Cheng observes, there is no reason to think that a non-functional space object is no longer a space object.<sup>284</sup> The sources of debris include (a) accidental and intentional break-ups which produce long-lived debris and (b) debris released intentionally during the operation of launch vehicle orbital stages and spacecraft.<sup>285</sup> To this may be added, the debris created from the

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<sup>279</sup> See Ch.I, s.4.1.

<sup>280</sup> See for example, Resolution 62/217 International Co-Operation in the Peaceful Uses of Outer Space, 62<sup>nd</sup> Session, 1<sup>st</sup> February 2008; Resolution 63/90 International Co-Operation in the Peaceful Uses of Outer Space, 63<sup>rd</sup> Session, 18<sup>th</sup> December 2008.

<sup>281</sup> For example, see Resolution 62/217, clause 10(a)(v) (Ireland abstaining); Resolution 63/90, clause 10(a)(v).

<sup>282</sup> *Technical Report on Space Debris*, United Nations publication, Sales No. E.99.I.17.

<sup>283</sup> A/AC.105/890, Annex IV, Space debris mitigation guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.42. The International Academy of Astronautics has also defined space debris as man-made in nature (*Position Paper on Orbital Debris*, 2001, p.3) as does the IADC (*Space Debris Mitigation Guidelines*, s.3.1).

<sup>284</sup> Cheng, Bin, *Studies in International Space Law* (Clarendon Press, Oxford, 1997), p.506.

<sup>285</sup> A/AC.105/890, Annex IV, Space debris mitigation guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.42. See generally, Baker, *supra*, p.3 *et seq*; Klinkrad, Heiner, *Space Debris: Models and Risk Analysis*, (Springer-Praxis, 2006), pp.5-59 and Committee on Space Debris of the National Research Council, *Orbital Debris: A Technical Assessment* (National Academy Press, 1995), pp.20-26.

collisions of those fragments. The problem of space debris is particularly pronounced in relation to space stations, which are major sources themselves of debris.<sup>286</sup>

## **11. Reasons for Regulation of Space as an Environmental Issue**

Space debris is one of several concerns to the space environment but consideration should be had to the reasons for protecting the space environment and regulating environmental concerns. The perception of outer space as being at the furthest reach of human grasp has been compounded by the technological difficulties in getting there. In light of this perception of the space environment as being distant, it is even more critical to assess the reasons for its protection. Furthermore, it may be argued that as liability may be imposed for space debris under the regime considered in Part I, there is already a means of protecting the space environment, albeit indirectly. However, this does not address the fact that there are specific environment-focused provisions in the *corpus iuris* which form separate international obligations and therefore presuppose that some regulation is necessary. Also there are aspects to environmental space pollution that do not come within the liability framework, for instance, where no damage is caused to the surface or the earth, an object in flight or an object or installation in space or on the surface of a celestial body. Liability is contingent upon damage to some party; damage to space, including the Moon or other celestial bodies, but not to any other party, State or otherwise is more properly within the scope of environmental protection and therefore the reasons for regulation should be addressed. There are several rationales for environmental protection of space; these include intergenerational equity, self-interest rationales, economic rationales and the protection of the space environment on its own merit.

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<sup>286</sup> Hwan, Kim Doo, "Liability [for] Compensation Caused by Space Debris (Satellite etc)" in Cheung, Chia-Jui (ed.), *Proceedings of The Use of Air Space and Outer Space Co-Operation and Competition Colloquium* (Beijing, 1995), p.305 et seq.

### 11.1 Intergenerational Equity<sup>287</sup>

Principle 3 of the Rio Declaration states that “the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations”. Weiss notes that “[a]t any given time, each generation is both a custodian or a trustee of the planet for future generations and a beneficiary of its fruits”.<sup>288</sup> Despite the practical and motivational difficulties which result in the principle not always being realised,<sup>289</sup> it was recognised in relation to the environment from 1946 in the International Convention for the Regulation of Whaling.<sup>290</sup> It became more frequently used from the late 1960s onwards<sup>291</sup> and was emphasised in the preamble to the 1982 World Charter for Nature<sup>292</sup> and the 1982 Nairobi Declaration.<sup>293</sup> Intergenerational equity is at the heart of sustainable development.<sup>294</sup> Such a principle is of particular value when applied to the exploitation of space resources, such as geostationary orbit (GEO), potential lunar

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<sup>287</sup> See generally Gillespie, Alexander, *International Environmental Policy and Ethics* (OUP, 2000), pp.107-126.

<sup>288</sup> Weiss, E.B., *In Fairness to Future Generations* (UNU, Japan, 1989), 17.

<sup>289</sup> Gillespie, *supra*, p. 117 et seq who sets out the problems associated with the argument as including the perceived vague connection between current and future generations, that accordingly the latter can offer little to justify the sacrifices to be made by the former

<sup>290</sup> 161 UNTS 72 (December 2<sup>nd</sup>, 1946); [1938] Irish Treaty Series 3.

<sup>291</sup> See Gillespie, *supra*, p.107. It appears in Principle 1 of the 1972 Stockholm Declaration of the UN Conference of the Human Environment UN Doc. A/CONF 48/14 (1972); (1972) 11 ILM 1416, Article 4 of the 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage (27 USTS 37; TIAS 8226, the Preamble to the 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora 27 USTS 1097, TIAS 8249; [2007] Irish Treaty Series 29, the Preamble to the Convention on the Conservation of Migratory Species of Wild Animals (June 23<sup>rd</sup>, 1946) BGBI 1984 II, 571, (1991) 19 ILM 15 and in Principles 1 and 3 of the Historical Responsibility of states for the Preservation of Nature for Present and Future Generations UN Doc. A/RES/35/8 (October 30<sup>th</sup> 1980).

<sup>292</sup> UN November 9<sup>th</sup>, 1982, UNGA Res 37/7; 37 UN GAOR Supp (No. 51) 17 UN Doc A/37/51/1982.

<sup>293</sup> UNEP Report 37 UN GAOR Annex 2 Supp. (No. 25), 49 ; UN Doc A/37/25 (1982).

<sup>294</sup> See the World Commission on Environment and Development, *Our Common Future*, (OUP, 1987), 40 and the Bergen Ministerial Declaration on Sustainable Development in the EEC UN Doc. A/CONF.151/PC/10; (1990) 1 *Yearbook on International Environmental Law* 429: 4312 See also Gillespie, *supra*, p. 108.

mining and development, and the minimisation of contamination, especially of the nuclear kind on the Moon and other celestial bodies. Pollution of celestial bodies as well as to outer space may also jeopardise future experimentation.<sup>295</sup> The need to protect the GEO from pollution for future generations has been recognised by UNCOPUOS.<sup>296</sup> The Moon Agreement also emphasises the need to have due regard to the interests of present and future generations in the use and exploration of the Moon.<sup>297</sup>

### 11.2 Human Health and Safety and Self-Interest Rationales<sup>298</sup>

The desire to minimise threats to human health and safety as well as the protection of the current generation's interests are further rationales for the regulation of the space environment. This has been recognised at the international level<sup>299</sup> for example by the World Commission on Environment and Development in 1982.<sup>300</sup> UNCOPUOS has predicated the need for space debris mitigation measures on the risk to life and crew safety.<sup>301</sup> Debris less than one tenth of a millimetre is capable of penetrating a space suit<sup>302</sup> thereby jeopardising the life of an astronaut. Currently, the ISS makes approximately two collision avoidance manoeuvres p.a.<sup>303</sup> NASA has also taken

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<sup>295</sup> Lachs, Manfred, *The Law of Outer Space* (Sijthoff, Leiden, 1972), p.113.

<sup>296</sup> A/AC.105/890, Annex IV, Space debris mitigation guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.42. See also Viikari, *supra*, pp.85-88 detailing the work of the ITU in the physical regulation of GEO.

<sup>297</sup> The Moon Agreement, Art. 4.

<sup>298</sup> Gillespie, *supra*, pp.19-17.

<sup>299</sup> See for example U.N.G.A. Resolution 2398 (XXIII) 1968, Pearson Commission, *Partners in Development* (Pall Mall Press, London, 1969) and Principle 2 of the 1972 Stockholm Declaration UN Doc. A/CONF48/14.

<sup>300</sup> World Commission on Environment and Development, *Our Common Future* (OUP, 1987), pp 32-3.

<sup>301</sup> A/AC.105/890, Annex IV, Space debris mitigation guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.42.

<sup>302</sup> The Missile Defence Agency Ballistic Missile Defense System, *Draft Programmatic Environmental Impact Statement*, September 1<sup>st</sup>, 2004, ES-33.

<sup>303</sup> Id, at ES-39. See Mirmina, Stephen A., "The Ballistic Missile Defence System and the Outer Space Environment," [2005] 31 *J. of Space L* 287, 301.

steps to manoeuvre the Shuttle away from the path of debris even where there is a low risk of collision.<sup>304</sup> A negative impact on human health may be definitive in viewing a contaminant as a pollutant. The OECD and UNCLOS definitions of pollution specifically refer to human health. In addition, international human rights law has matured<sup>305</sup> to allow for the indirect protection of the environment in which individuals live.<sup>306</sup> This takes the primarily a procedural form for example in relation to the provision of information.<sup>307</sup>

### 11.3 Economic Rationales<sup>308</sup>

Economic justifications are the most popular rationale for environmental protection.<sup>309</sup> They have been referenced in international law for over a century.<sup>310</sup>

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<sup>304</sup> Mirmina, Stephen A., "Reducing the Proliferation of Orbital Debris: Alternatives to a Legally Binding Instrument," [2005] 99 *Am. J. Int'l L.* 649, 653.

<sup>305</sup> Boyle, E. Alan and Michael, R., Anderson, *Human Rights Approaches to Environmental Protection* (OUP, 1996), p.1

<sup>306</sup> *López Ostra v Spain* [1994] ECHR 46. The ECtHR observed at para. 51: "Naturally, severe environmental pollution may affect individuals' well-being and prevent them from enjoying their homes in such a way as to affect their private and family life adversely, without, however, seriously endangering their health. Whether the question is analysed in terms of a positive duty on the State - to take reasonable and appropriate measures to secure the applicant's rights under paragraph 1 of Article 8 ... or in terms of an 'interference by a public authority' to be justified in accordance with paragraph 2 (art. 8-2), the applicable principles are broadly similar. In both contexts regard must be had to the fair balance that has to be struck between the competing interests of the individual and of the community as a whole, and in any case the State enjoys a certain margin of appreciation."

<sup>307</sup> See the Aarhus Convention on Access to Information, Participation in Decision-Making and Access to Justice in Environmental Matters ;*Guerra and Others v. Italy* (1998) 26 EHRR 357; *Öneryıldız v. Turkey* [2004] ECHR 657, (2005) 41 EHRR 20. See Scott, J., "'Proceduralization' and Environmental Governance in the EU" in De Búrca, Gráinne and Scott (eds), *Constitutional Change in the EU: From Uniformity to Flexibility* (Oxford, Hart, 2008) and UNESCO, *Experts Meeting Freedom of Information and Sustainable Development, Sealing the Link* (Paris, 2008), Annex III: Is the environment protected under the ECHR ?, p.2.

<sup>308</sup> Gillespie, Alexander, *International Environmental Policy and Ethics*, OUP, 2000, pp.28-61.

<sup>309</sup> Gillespie, *supra*, p.28.

<sup>310</sup> See the preambles to the Convention for the Protection of Birds Useful to Agriculture 1902, Convention on International Trade in Endangered Species of Wild Flora and Fauna 1973 973 UNTS 243, [2007] Irish Treaty Series 29; Convention on Wetlands of International Importance 1971 996 UNTS 244, [2007] Irish Treaty Series 101; Protocol to the Convention on Long Range Transboundary

Space missions, be they manned or unmanned are expensive, and the loss of a mission due to space debris provides an economic incentive to limit the damage to GEO.<sup>311</sup> The likelihood that a piece of debris will collide with a particular spacecraft is dependant on the debris flux through its orbital region and its size.<sup>312</sup> The probability of a collision is relative to the craft's cross-sectional area and the length of time in the environment.<sup>313</sup> The cost of the loss of a satellite or the loss of satellite life or other space object will inevitably be high as it represents a loss not only of the object but a waste of resources expended in launching the object.

#### *11.4 To Protect the Space Environment on its Own Merits*

Environmentalism in its purest form has been applied to the consideration of outer space. Baker observes that the consequence of “an environmental approach, is that the protection of the outer space environment and its sub-systems is the priority, rather than its preservation for present or future human space activities.”<sup>314</sup> Wells provides a wider environmental approach which is tied to intergenerational equity:

Outer space, a source of wonder and inspiration for centuries, deserves to be preserved in its original pristine state, for its own sake and for future generations to enjoy.<sup>315</sup>

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Air Pollution on the Reduction of Sulphur Emissions (1979) 18 ILM 144, Convention for the Protection of the Natural Environment of the South Pacific 1986 (1987) 26 ILM 38 and the Convention for the Protection, Management and Development of the Marine and Coastal Environment of the East African Region (1985) 2 SMT 234.

<sup>311</sup> A/AC.105/890, Annex IV, Space debris mitigation guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.42.

<sup>312</sup> See Committee on Space Debris of the National Research Council, *Orbital Debris: A Technical Assessment* (National Academy Press, 1995), p.80.

<sup>313</sup> See Committee on Space Debris of the National Research Council, *Orbital Debris: A Technical Assessment, supra*, p.80.

<sup>314</sup> Baker, *supra*.

<sup>315</sup> Schafer, Bernard, “Solid Hazardous and Radioactive Wastes in Outer Space: Present Controls and Suggested Changes,” in Wells, Robert (ed), *Law, Values, and the Environment* (Scarecrow Press, 1996) 395 at 399 quoted by Huebert, J.H. and Walter Block, “Space Environmentalism Property Rights and the Law,” (2008) 58 *University of Memphis L. Rev.* 281, at p.286.

Although Apking expresses the pure view:

[W]e must ensure that our presence [in space] does not defile what remains one of the few accessible pristine areas.<sup>316</sup>

It would seem that as a stand-alone argument this is the weakest rationale in favour of the protection of the environment.<sup>317</sup> Indeed the trend in international commentaries in relation to space debris is to emphasise the economic costs and the risk to human life. Furthermore, applying this rationale to its logical extreme would in effect reduce nearly all activity in space at the current stage of technological development as even with the strictest adherence to best practice mitigation guidelines launching and outer space activity will still cause more debris. Thus, at its logical extreme, the importance of human space activities, even within earth orbit is denied in favour of preservation. Such an approach is untenable as it would result in extensive delays of multiple generations of technological development till such a stage could be reached where there would be no debris or debris could be addressed.<sup>318</sup>

In addition, the vastness of space and the current limitations of space travel mean that the only the minority of outer space will ever be touched by human creations; the majority of space will remain untouched by humans. A related counter-argument that may be directed towards Wells' comment is that space is not a 'pristine' environment in the same way as a pacific island paradise. The space environment is lethal to humans given the high levels of solar radiation and contains high levels of

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<sup>316</sup> Apking, April G., "The Rush to Develop Space: The Role of Spacefaring Nations in Forging Environmental Standards for the Use of Celestial Bodies for Governmental and Private Interests," (2005) 16 *Colorado Journal of International Environmental Law and Policy* 429, 433 quoted by Huebert, J.H. and Block, Walter, "Space Environmentalism Property Rights and the Law," (2008) 58 *University of Memphis L. Rev.* 281, at p.286.

<sup>317</sup> See generally Huebert, J.H. and Walter Block, "Space Environmentalism Property Rights and the Law," (2008) 58 *University of Memphis L. Rev.* 281.

<sup>318</sup> For example, Bekey, I., "Orion's Laser: Hunting Space Debris" (1997) 35(5) *Aerospace America* 35-48 who suggests an earth-to-space laser targeting space debris.

background radiation. The birth and death of stars, the collision of worlds and the destruction wrought by Black holes – such changes, even when they are perceived from our window on the heavens, do not indicate a pure, static environment capable of preservation.

The rationale taken at its highest point is untenable with regard to the global space industry and implausible when the scale of space is considered. This is not to say that the rationale is completely devoid of all merit. When balanced with other considerations and tied to other rationales, clearly the need to preserve the space environment from uncontrolled contamination could be addressed without the need to take the rationale to extremes. Almár suggests, for instance, that a survey of scientifically important planetary environments be drawn up by COSPAR and that the survey should be used to draft a list from which “international scientific preserves or ‘wilderness areas,’” such sites would be “open to scientific investigation but closed to exploitation of natural resources”.<sup>319</sup> Such an approach would address the need for preservation of the space environment but addresses practical constraints by operating within a limited sphere of legal control without hindering scientific progress unduly.

## **12. Level of Regulation**

As mentioned above some regulation of the environment occurs at the international level in the corpus iuris. It is submitted that as the outer space environment is part of the global commons, binding regulation at international level is the preferred means of addressing the concerns raised here.

Currently damage on the surface of earth caused by the initial testing phases and launching activities can be regulated by domestic law of the territory in which the testing occurs or subject to the agreement of that territory and the state responsible for carrying out the activities or procuring the activities. For those activities that occur within a state’s territory, the state itself ultimately acts as its own watch-dog

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<sup>319</sup> “What Could COSPAR do to Protect the Planetary Space Environment?” [2002] 30(6) *Advances in Space Research* 1577, at p.1577.



and it is in its interests to do so and may be a constitutional imperative as an offshoot of the obligation to protect and vindicate the rights of its citizens. However, in relation to damage in outer space, the harm is occurring to the global commons. The protection to the environment from being within the sovereignty of a state no longer applies in outer space, nor to other celestial bodies including the moon. The problem of space debris is arguable similar in nature to the issue of the depletion of the ozone layer or global warming. Hanqin describes the nature of such matters in the following terms:

Such environmental issues constitute another kind of non-accidental damage, but with a few distinctions. First, the damage is not to a particular state but to the common areas. Further it is caused over a long span of time by human activities and cannot be attributed to any particular State. The harmful effects of the damage, if not dully controlled in time, will affect the community as a whole; therefore there is a common interest among States to take action. Finally any preventative or remedial action taken by a single State is of no use to reverse the course of degradation and deterioration. Only by getting all States on board to take joint action can such adverse developments be effectively controlled.<sup>320</sup>

Viewed from this perspective, international law is the most suitable means of regulating liability for harm to the global commons. This is not to say that national law is inapplicable nor that regional law cannot play its part, indeed it is equally possible to envisage both playing such a role, the effect of the harm would have to be felt by a state through damage to its territory or its citizenry whereas damage to the outer space environment and/or a celestial body cannot by virtue of international law affect state sovereignty unless there is an impact on an asset within space such as a satellite, a space vehicle or space base. However, in the event where the damage is to the space environment *simpliciter* with no injured state party, an international regime which safeguards the space environment would be best suited to regulating harm to such common heritage.

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<sup>320</sup> Hanqin, *supra*, p.16.

There are further advantages to regulating environmental problems in outer space. These were identified by Viikari:

In the increasingly international, commercialized and privatized space sector global rules are essential... They would ensure a level (or at least a relatively fair) playing field for all stake-holders and help avoid the free-rider problem. Common regulation could also synchronize the efforts already taken in this area. Indeed, now would be the time for truly international norms instead of fragmented and informal approaches to the problems identified.

The 'free riders' refer to entities that "benefit by the actions of others without sharing any of the responsibility or cost".<sup>321</sup> In relation to space, the term does not apply to States and their agencies who do bear responsibility and cost but can include natural and legal persons engaged in space activities. An international regime requiring States to treat all operators equally would address this specific problem.

In light of the nature of the space environment as a global commons, the need to ensure a level playing field and to synchronise existing efforts, international regulation is the preferred means of addressing environmental space harm. The existing efforts, as embodied in the corpus iuris and general environmental law and principles will now be considered.

### **13. Current Regulation of the Space Environment**

Legal protection of the environment generally may be found at all levels and specific regulation may be found for more hazardous substances, such as nuclear damage.<sup>322</sup>

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<sup>321</sup> Susskind, Laurence, *Environmental Diplomacy: Negotiating More Effective Global Agreements* (OUP, 1994), p.23 quoted by Viikari, *supra*, p.5.

<sup>322</sup> Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water 1963. 480 UNTS 43.

There is an obligation on States under the Rio Convention to cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.<sup>323</sup> The Declaration also obliges the State to enact environmental legislation at the national level.<sup>324</sup> Regulation of the space environment may be approached under the provisions of liability generally or under the environment-specific responsibilities in the *corpus iuris* and may also be examined under general environmental law and principles. The obligations are both substantive and procedural in nature.

### **13.1 Substantive Regulation of Environmental Damage**

#### *13.1.1 Regulation of Environmental Damage under the Corpus Iuris*

##### *13.1.1.2 Environmental Damage to the Surface of the Earth and Airspace*

Where damage occurs of an environmental nature to the surface of the earth or to territorial airspace, the state claiming sovereignty over the damaged part state may pursue its cause of action against the launching state as *per* the regime set out in the Liability Convention 1972 considered in part I. Similarly, where the damage occurred to a vessel on the high seas, an aircraft in flight to citizens or a base on Antarctica, the states which claim jurisdiction over the vessel or aircraft, citizenry or base may proceed against the launching state.

However, difficulties may arise in relation to the identification of the ‘launching state’ of the piece of space debris. While the ‘launching state’ provides certainty in determining on whom the burden of liability rests, such a party may not be readily

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<sup>323</sup> Principle 13 of the Rio Declaration.

<sup>324</sup> Principle 11 of the Rio Declaration.

ascertainable.<sup>325</sup> Furthermore, as noted by Jasentuliyana, the Liability Convention does not require the taking of mitigation measures to minimise space debris – by itself, it is therefore only a limited deterrent against the generation of such debris.<sup>326</sup> But as space debris may also negatively impact on the access of States to outer space as provided for in Article I(2) of the Outer Space Treaty,<sup>327</sup> this article may therefore provide another basis to justify space debris mitigation measures. In addition, the Liability Convention should be read in conjunction with Article IX of the Outer Space Treaty.

Article IX of the Outer Space Treaty is the basic provision for all environmental protection in outer space.<sup>328</sup> It also imposes obligations on States with regard to exobiological contamination.<sup>329</sup> It provides that State Parties must conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. Furthermore, they must pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and avoid “adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter”.

No further guidance is given as to what constitutes ‘harmful contamination’ or ‘adverse changes’ for these purposes.<sup>330</sup> Jasentuliyana submits that this vague terminology is reflective of the lack of technological knowledge and the ability to foresee future problems.<sup>331</sup> Where necessary, States must adopt appropriate measures for this purpose but the scope or nature of these measures is not set out

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<sup>325</sup> Jasentuliyana, *infra*, p.143.

<sup>326</sup> *Ibid.*

<sup>327</sup> Viikari, *supra*, p.58.

<sup>328</sup> See Viikari, *supra*, p.59. See also clause VI of the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space Resolution 1962 (XVIII) 1280th plenary meeting, 13 December 1963.

<sup>329</sup> See Viikari, *supra*, p.50 *et seq.*

<sup>330</sup> See Viikari, *supra*, p.60.

<sup>331</sup> Jasentuliyana, Nandi, “Space Debris and International Law,” [1998] 26 *J. of Sp. L.* 139, at p. 141.

within the instrument itself and are at the discretion of the State.<sup>332</sup> The same obligation is encountered in Art. 7(1) of the Moon Agreement which provides that States Parties must “take measures to avoid harmfully affecting the environment of the earth through the introduction of extraterrestrial matter or otherwise.” As with the Outer Space Treaty, the key terms are not elucidated; no definition of ‘extraterrestrial matter’ is found in the Agreement. It could mean matter occurring outside of the Earth or include both the Earth and its atmosphere. It would not appear to include contaminated man-made matter which probably comes within ‘otherwise’.

In relation to nuclear activities in outer space having an impact on the surface, while the Outer Space Treaty<sup>333</sup> and customary international law prohibit the placing of objects carrying nuclear weapons in orbit around earth or install such weapons on celestial bodies, or station such weapons in outer space in any other manner, nuclear-powered objects are not precluded.<sup>334</sup> Following the crash of the uranium-powered satellite Cosmos 954,<sup>335</sup> radioactive debris was strewn across a sparsely populated area of the northwest provinces in Canada of approximately 50,000 square kilometres. Canada pursued its claim under the Liability Convention and under general principles of international law and a settlement was reached between it and the launching state, the then USSR. Damage cited included the cost of clean-up and remediation for the environment. Under the Treaty Banning Nuclear Weapon Tests of 1963, nuclear explosions are prohibited if they cause radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control such explosions are conducted.<sup>336</sup> The Principles Relevant to the Use of Nuclear Power Sources in Outer Space are also applicable. The principles require that States launching space objects with nuclear power sources on board endeavour to protect individuals, populations and the biosphere against radiological hazards.<sup>337</sup> Principle 9 emphasises the provisions regulating liability in the Liability Convention and the

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<sup>332</sup> Viikari, *supra*, p.60.

<sup>333</sup> Art. VI of the OST.

<sup>334</sup> See U.N.G.A. Resolution 1884 (XVIII).

<sup>335</sup> See s.4 of this chapter.

<sup>336</sup> Article 17(1).

<sup>337</sup> Resolution 47/68 of 14<sup>th</sup> December 1992.

Outer Space Treaty to nuclear-powered satellites. However, these principles are non-binding as they are embodied in soft law.

#### *13.1.1.2 Environmental Damage to Outer Space*

Article IX of the Outer Space Treaty also provides that States Parties must pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination, with the same obligation to impose. This appears to extend greater protection towards to outer space than earth, the former is protected against any harmful contamination while the latter is protected only against back-contamination.<sup>338</sup> Article 7(1) of the Moon Agreement provides for further obligations in the exploration and use of the Moon. State parties must “take measures to prevent the disruption of the existing balance of its environment, whether by introducing adverse changes in that environment, by its harmful contamination through the introduction of extra-environmental matter or otherwise”.<sup>339</sup>

#### *13.1.2 Regulation of Environmental Damage under General International Law*

There is also a general duty not to cause transboundary harm imposed on states which was stated in *Trail Smelter*<sup>340</sup> in the following terms:

No State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.

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<sup>338</sup> Viikari, *supra*, p.60.

<sup>339</sup> For more on the actual debris on the Moon, see Williamson, Mark, “Planetary Spacecraft Debris - The Case for Protecting the Space Environment” [2000] 47 *Acta Astronautica* 719; Williamson, Mark, “Lunar Exploration and Development – A Sustainable Model” [2005] 57 *Acta Astronautica* 161 and Williamson, Mark, *Space – The Fragile Frontier*, (AIAA, Reston VA, 2006), pp.105-109.

<sup>340</sup> *U.S. v Canada* 3 R.I.A.A. 1938, 1965 (Mar. 11, 1941).

The obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or of areas beyond national control was more recently held to be part of the corpus of international law relating to the environment in the ICJ's *Advisory Opinion on the Legality or Threat of Use of Nuclear Weapons*.<sup>341</sup> Principle 21 of the Stockholm declaration<sup>342</sup> expresses this duty albeit in a wider form encompassing duality of thought expressed in *Trail Smelter*,<sup>343</sup> *Donauversinkung*,<sup>344</sup> *Société Énergie Electrique*<sup>345</sup> and *Corfu Channel*<sup>346</sup> cases namely the freedom of states to utilise resources and the responsibility imposed on the state in the exercise of that freedom vis-à-vis the environment as well as other states:

States have in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

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<sup>341</sup> (1996) *ICJ Reports* 226 at para.29.

<sup>342</sup> Stockholm Declaration on the Human Environment, *Report of the UN Conference on the Human Environment, Stockholm, June 5<sup>th</sup>-16<sup>th</sup>, 1972*, U.N. Doc. A/CONF.48/14/Rev. 1; (1972) 11 ILM 1416. See Schwabach, Aaron, *International Environmental Disputes*, (ABC CLIO, 2006), pp.19-20.

<sup>343</sup> *United States v Canada* III UNRIAA 1917. See generally Kuhn, Arthur, "The Trail Smelter Arbitration – United States v Canada," (1938) 32 *Am. J. Int'l L.* 785; (1941) 35 *Am. J. Int'l. L.* 665; Read, John E., "The Trail Smelter Dispute" (1963) *Can. Yr. Int'l L.* 213 and Rubin, Alfred, "Pollution by Analogy: The Trail Smelter Arbitration," (1971) 50 *Oregon L. Rev.* 259.

<sup>344</sup> *Württemberg and Prussia v Baden*, Staatsgerichtshof, 18 June 1927, *Entscheidungen des Reichsgerichts in Zivilsachen*, vol. 116, App., pp. 18. See McCaffrey, Stephen C., *The Law of International Watercourses: Non-Navigational Uses*, (OUP, 2001) pp. 217-221 and 421-422.

<sup>345</sup> *Société Énergie Electrique du Littoral Méditerranéen v Campagnia Impresse Electriche Liguri* (1938-40) Ann. Dig. 120 (No. 47 Court de Cassation (United Sections)).

<sup>346</sup> *United Kingdom v Albania* (Merits) [1949] *ICJ Reports* 4. The case did not involve environmental issues but the Court's dicta that 'every state's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other states' has been applied equally to environmental matters. See Kuokkanen, Tuomas, *International Law and the Environment – Variations on a Theme*, (Kluwer Law International, Leiden, 2002), p. 68.

The 1982 World Charter for Nature iterates this as does Principle 2 of the Rio Declaration of 1992.<sup>347</sup> The duty may also be rooted in soft law such as the OECD Council Recommendation Concerning Transfrontier Pollution<sup>348</sup> and various U.N. G.A. resolutions.<sup>349</sup> These provisions govern activities of states in outer space by virtue of Article III of the Outer Space Treaty which requires State parties to carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law. Charney has observed:

General customary international law requires that all States behave in a manner so as not to cause harm to the environment of areas beyond the jurisdiction of any state including, *a fortiori*... outer space.<sup>350</sup>

The International Law Commission has considered both the prevention and liability of states for transboundary harm arising from acts not prohibited by international law. The ILC's work on the former commenced on the basis of the reports of the Special Rapporteur appointed in 1997<sup>351</sup> and in 2001 the ILC submitted its draft articles on the prevention of transboundary harm from hazardous activities to the UN General Assembly<sup>352</sup> recommending a framework convention on the same terms as the articles be formulated.<sup>353</sup> The draft articles on the prevention of transboundary harm of hazardous activities applies only to activities that are not prohibited by international law.<sup>354</sup>

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<sup>347</sup> Rio Declaration on Environment and Development, U.N. Doc. A/CONF. 151/5/Rev.1 (1992) 31 ILM 876. See Schwabach, *supra*, pp.22-23.

<sup>348</sup> OECD Council Recommendation C(74) 224 Nov 14<sup>th</sup>, 1974, Title B(2).

<sup>349</sup> GA Res 3129 (XXVIII) UNGAOR Supp. (No. 30A)

<sup>350</sup> Charney, Jonathon I., "Third State Remedies for Environmental Damage to the World's Common Spaces," in Franconi, Francesco and Scovazzi, Tullio (eds), *International Responsibility for Environmental Harm* (Kluwer Law International, Leiden, 1991), p.175

<sup>351</sup> 1997 ILC Report A/52/10, p.9, para.17 and p.59, para.168.

<sup>352</sup> See Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 10 (A/56/10), paras. 91, 92, 97 and 98.

<sup>353</sup> Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 10 (A/56/10), para. 94.

<sup>354</sup> See Art. 1 of the Draft Articles, Official Records of the General Assembly, Fifty-sixth Session, Supplement No. 10 (A/56/10).



Under Art.3 of the draft articles, the State of origin of the activity which poses a risk of transboundary harm must take all appropriate measures to prevent significant transboundary harm or at any event to minimize the risk thereof. Under Article IV, States have an obligation to co-operate in good faith and seek the assistance of one or more competent international organizations in preventing significant transboundary harm or in minimizing its risk. They are required to take such legislative, administrative or other action as necessary including the establishment of suitable monitoring mechanisms to implement the draft articles.<sup>355</sup>

The articles also provide for a system of prior authorisation by states of origin for activities within its control that pose a risk of transboundary harm, a change to existing risk-bearing activities or a change that render current activities into risk-bearing activities.<sup>356</sup> Failure to comply with the terms of an authorisation may result in the termination of the authorisation. This requirement would be of use in relation to space activities especially those likely to increase space debris for example the US Ballistic Missile defence system<sup>357</sup> or the Chinese ASAT test. The decision in respect of the grant or refusal of authorisation is to be based on the possible risk of transboundary harm, which incorporates the precautionary principle. Any dispute arising under the draft articles must be settled “expeditiously through peaceful means of settlement chosen by mutual agreement of the parties to the dispute, including negotiations, mediation, conciliation, arbitration or judicial settlement”. Failing an agreement on the means for the peaceful settlement of the dispute within six months, the parties must, at the request of any of them, have recourse to the establishment of an impartial fact-finding commission. The Commission will set forth its findings of fact and its recommendations but while the parties are obligated to consider both in good faith, they are not required to adopt them.<sup>358</sup> The articles are stated to be without prejudice to any obligation incurred by States under relevant treaties or rules

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<sup>355</sup> Id. Art.5.

<sup>356</sup> Id. Art.6.

<sup>357</sup> Mirmina, Stephen A., “The Ballistic Missile Defence System and the Outer Space Environment,” [2005] 31 *J. of Space L* 287 and Jasani, Bhupendra, “Military Use of Outer Space,” [2002] XXVII *Annals of Air & Space Law* 347 at s.IV.

<sup>358</sup> Id. Art.19(6).

of customary international law.<sup>359</sup> They have not to date been used to formulate a Treaty nor do they amount to customary international law but they are of persuasive value.

### *13.1.3 Environmental Principles*

There are several legal principles that apply specifically in relation to environmental issues. They include: the precautionary principle, the principle of prevention and the polluter-pays principle. The first two have evolved to address environmental concerns where there is scientific uncertainty regarding future risk associated with an activity. As such, they are particularly pertinent where the consequences of harm to the space environment might not be fully realised for several years, if not generations. The third principle provides a means of addressing the 'free rider' problem identified above, ensuring greater fairness in the distribution of cost arising from risk, and results in the cost of the risk being absorbed by the parties engaged in the activity through insurance, thus guaranteeing that activity levels reflect the particular risk of environmental harm. There is some academic dispute as to whether these principles are norms of international law or not but in view of the fact that new binding international regulation is envisaged, these principles may be specifically applied in the instrument, even if they are not binding generally.

#### *13.1.3.1 The Precautionary Principle*<sup>360</sup>

The precautionary principle is found in many international environmental instruments<sup>361</sup> and is one of the principles at the heart of EU environmental law.<sup>362</sup>

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<sup>359</sup> Id. Art. 18.

<sup>360</sup> de Sadeleer, Nicolas, *Environmental Principles : From Political Slogans to Legal Rules*, (OUP, 2002), pp. 91-226 and Viikari, pp.157-168

<sup>361</sup> Articles 10-11 Cartagena Biosafety Protocol 2003, Articles 1 and 8 of the Stockholm Convention on Persistent Organic Pollutants, 2004, Ministerial Directions of the International North Sea Conferences, 1987, 1990 and 1995, Energy Charter Treaty Annex I, Sept 14, 1994, 27/94 CONF/104, Framework Convention on Climate Change 31 ILM 849, Convention on the Protection and Use of Transboundary Watercourses and International Lakes, Bergen Ministerial Declaration on Sustainable Development in the ECE Region, UN Doc. A/CONF.151/PC/10; (1990) 429(1) *Yearbook on*

For example Principle 15 of the Rio Declaration, 1992 requires the precautionary approach ‘to be widely applied by States according to their capabilities’. According to Principle 15, where there are threats of serious or irreversible damage, the lack of full scientific certainty is not to be used as a reason for postponing cost-effective measures to prevent environmental degradation. It embodies ‘anticipatory preventive action’ which protects the interests of those living in an environment and the environment itself.<sup>363</sup> The lack of certainty aspect is iterated in the Preamble to the Convention on Biological Diversity, 1992, and in the Convention on International Trade in Endangered Species of Wild Fauna and Flora.<sup>364</sup> It is also integrated into national plans. There is some academic debate as to whether the precautionary principle is a part of customary international environmental law. If it is a custom, it is clearly foundational and applicable to both the general and specific international law outlined above. While Bodansky and Juli argue that it is not a part of custom<sup>365</sup> but more recently de Sadeleer argues that it is now to be considered a legal rule.<sup>366</sup> It is submitted that at this stage, de Sadeleer’s views are preferred as he reflects more recent practice.

The application of the precautionary principle is of particular importance in relation to outer space where many of the activities performed are of an experimental kind. In the words of Lachs:

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*International Environmental Law* 4312, Second World Climate Conference: Ministerial Declaration of the Second World Climate Conference (1990) 473 *Yearbook of International Environmental Law* 475, United Nations Environment Programme Report of the Governing Council on the Work of its Fifteenth Session, United Nations Environment Programme, UN GAOR, 44<sup>th</sup> Session, Supp No 25, 12<sup>th</sup> mtg at 153, UN DOC A44/25, Protocol on Substances that Deplete the Ozone Layer (1987) 26 ILM 154.

<sup>362</sup> Article 130r(2) of 1997 Amsterdam Treaty (97/C 340/01) OJ C 340 of 1997-11-10; European Court Judgements of 1998-05-05 ~ Ground 63 of Case C-157/96 & Ground 99 of Case C-180/96

<sup>363</sup> Viikari, p.157 and p.159.

<sup>364</sup> Conf 9.24 (Rev CoP13).

<sup>365</sup> See Bodansky, Daniel, “Scientific Uncertainty and the Precautionary Principle” (1991) 33 *Environment* 4 and Cameron, James and Abounchar, Juli, “The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment,” (1991) 14 *B.C. Int’l & Comp. L.Rev.* 1, at pp.20-21.

<sup>366</sup> de Sadeleer, Nicolas, *Environmental Principles : From Political Slogans to Legal Rules*, (OUP, 2002), pp. 91-226.

Not only may further research be prejudiced by the pollution of space or of celestial bodies, the bacterial or radio-active contamination of celestial bodies or the alteration of their surface but more permanent damage may be done to outer space and to our own atmospheric environment, with a consequent jeopardizing of health and life on our planet. Citizens of many countries, even mankind as a whole, could fall victim to such dangers.... No reminder should be needed of the temptation to which States armed with the great potentialities of modern science are exposed: that of limitless experimentation. Prompted by the most praiseworthy motives men are sometimes involuntarily blind to the possible consequences of their experiments. Yet the results they may produce can be irreversibly deleterious to life, or even catastrophic. Not surprisingly, governments and scientists have been engrossed with the urgent necessity of taking all possible precautions...

Viikari adopts a more measured stance on the principle and its application observing that while the uncertainty in space indicates its principles may be applied here, the ultra-hazardous nature of the activity renders concepts of due diligence and precaution 'somewhat less applicable'.<sup>367</sup> Liability will be imposed regardless of the best practice guidelines required by due diligence. Nonetheless, it may affect activity levels by encouraging a more cautious approach to evaluating space mission necessity.<sup>368</sup>

### *13.1.3.2 Prevention*<sup>369</sup>

This is one of the most well-established principles in international environmental law having been referenced in 1941 in *Trail Smelter*. The tribunal recognised the obligation of States to prevent transboundary pollution thus establishing the rule that

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<sup>367</sup> Viikari, p.174.

<sup>368</sup> Ibid, p.174. Viikari cites the example of sending cremated ashes into space.

<sup>369</sup> Ibid., pp.61-90.

States have a duty of prevention with regard to pollution that could affect other States.

The prevention principle differs from the precautionary principle at a fundamental level. The former enables the identification of known risks with the aim of avoiding risk actualisation or limiting it. The latter is more concerned with potential and possible risks, rather than probable risks. Lack of scientific certainty may still result in prohibition in the case of the latter.

The principle applied requires States to adopt prior authorisation procedures, which is also part of a State's responsibility to supervise the activities of its nationals' activities in outer space. The presence of space debris guidelines provides competent authorities, as well as those engaged in space activities, with a basis for considering the conditions for certifying a launch vehicle or space object. Non-adherence to the guidelines or a failure to meet with the testing standards permits the competent authority to refuse the relevant authorisation and may therefore be viewed in part as preventative in nature. Environmental impact statements also allow consideration by competent authorities of environmental concerns in relation to launch sites on Earth. The planning process with its incorporated element of public consultation also facilitates the ability of the competent authority to make its decision in light of all available information and concerns and to impose conditions on the planning permission to address those concerns. These procedures can have a preventative nature in prohibiting those developments, in the case of launch sites or spaceports, or licences, in the case of launches, that do not address adequately environmental issues or comply with conditions which protect the environment.

### 13.1.3.3 Polluter Pays Principle<sup>370</sup>

The polluter pays principle requires that the costs of pollution be borne by the person responsible for causing the pollution.<sup>371</sup> Practically, it impacts on the allocation of economic obligations arising from environmentally damaging activities. As observed by Sands, it has not been endorsed and supported to the same extent as the precautionary or prevention principles.<sup>372</sup> *Trail Smelter* been viewed as an application of the polluter pay principle as it required the polluting state to compensate the state harmed. However, it was Canada that was directed to pay by the Tribunal and which bore the responsibility rather than Consolidated Mining, the owner and operator of the polluting smelter.<sup>373</sup>

The polluter pays principle is found proclaimed in several perambulatory clauses<sup>374</sup> as well as being affirmed in operative provisions.<sup>375</sup> It is embodied in Principle 16 of

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<sup>370</sup> Also known as the causality principle: Verursacherprinzip: Art. 20(a) German Federal Constitution; Art. 2 of the Swiss Federal Law on Environmental Protection 1983. See generally Viikari, p.184 *et seq.*, Romi, “Le Principe Pollueur-Payeur, Ses Implications et Ses Applications, (1991) 8 *Droit de l’Environnement* 46 and de Sadeleer, Nicolas, *Environmental Principles : From Political Slogans to Legal Rules*, (OUP, 2002), pp.21-60.

<sup>371</sup> See Sands, *supra*, p.279. See also Art. 1.2.1.§2 1995 Flemish Act and art. L 100 – 1 French Environmental Code

<sup>372</sup> See Sands, *supra*, p.280.

<sup>373</sup> See Anderson, Mark, “Derivative versus Direct Liability as a Basis for State Liability for Transboundary Harm” in Bratspies, Rebecca, and Miller, Russel (eds), *Transboundary Harm in International Law* (CUP, 2006,) p.99 *et seq.*

<sup>374</sup> 1980 Athens Protocol for the Protection of the Mediterranean Sea Against Pollution from Land-Based Sources and Activities (1980) 19 ILM 869, the 1990 Oil Pollution Preparedness, Response and Co-Operation Convention (1991) 30 ILM 735 , the 1992 Helsinki Convention on the Transboundary Effects of Industrial Accidents (1992) 31 ILM 1330, the 1993 Lugano Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment (1993) 32 ILM 1228 and the 2000 London Protocol on Preparedness, Response and Co-Operation to Pollution Incidents by Hazardous and Noxious Substances IMO Doc HNS-OPRC/CONF/11/Rev 1(2000).

<sup>375</sup> Art. 10(d) of the 1985 ASEAN Agreement on the Conservation of Nature and Natural Resources 15 EPL 64, 985 EMuT 51, Art. 2(1) of the 1991 Convention on the Protection of the Alps (1992) 31 ILM 767, Article 73 of the Porto Agreement to Establish the EEA (1988) 27 ILM 281 and Art.2.2(b) of the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) Convention (1993) 32 ILM 1069.

the Rio Declaration which places the onus on national authorities to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment. However, some academic opinion doubts if the principle is part of customary international law save in relation to the EC, UNECE or OECD.<sup>376</sup> Nonetheless the principle has been applied in conventions on civil liability for nuclear damage and in maritime law in the 1971 Oil Fund Convention.

The polluter for these purposes is dependant on the assessment of 'pollution' and is the person or entity that causes the pollution. They may be the controller or operator of the installer. The *corpus iuris* provisions on environmental protection make unsurprisingly no reference to the principle nor is the principle applied. It is submitted that applying the polluter pays principle to assist in imposing the financial burden of environmental harm is economically favourable to the current liability provisions. First, the imposition of liability should act as a control on activity levels. Secondly, it should eliminate the economic inefficiency that arises from the dual process necessary for financial recovery from the polluter that currently exists. The party bearing direct causal accountability for the pollution is not liable under international law save in the case of an international intergovernmental agency that has signed and ratified the relevant instruments (e.g. ESA). It is imposed on the state of nationality of the polluter. The State may then chose to pursue the responsible party under its own law. This sequential process for transferring the financial burden ultimately to the polluter results in the economic inefficiency that a supranational application of the polluter pays principle would avoid. Furthermore, applying the principle in relation to space activities, as with all activities, appeals to fairness rationales of allowing the costs to fall upon the party who engaged in the risk-bearing activity.

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<sup>376</sup>See for instance the 1972 OECD Recommendation on Guiding Principles Concerning International Economic Aspects of Environmental Protection. Sands, *supra*, p.280.

## 13.2 Procedural Aspect of Environmental Space Regulation

There are several procedural aspects to environmental space regulation. These include the duty to inform or to notify, the duty to consult and the power to request a consultation. These are considered in turn below with reference to both the *corpus iuris*, the Moon Agreement and general principles as codified in the ILC's non-binding draft articles on the prevention of transboundary harm from hazardous activities.

### *13.2.1 Duty to Inform or Notify*

The duty to inform of environmental threats applies to both natural and man-made hazards. The duty as encapsulated in Article V(3) of the Outer Space Treaty requires that the threat to astronauts rather than earth:

States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the moon and other celestial bodies, which could constitute a danger to the life or health of astronauts.

However, a wider duty to inform may also be grounded in Article IX which states that in the exploration and use of outer space, including the moon and other celestial bodies, States Parties are to be guided by the principle of co-operation and mutual assistance and are to conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties. The application of Article V(3) of the OST requires that some form of warning system exists. Lachs observes:

To be effective, the information supplied must be sufficient to permit all other States to take precautionary measures, depending on the nature of the



phenomenon, to protect their astronauts or suspend certain types of experiment.<sup>377</sup>

Article 7(2) of the Moon Agreement also imposes a duty to notify on state parties though it is limited in scope requiring them, to the maximum extent feasible, notify the UN Secretary-General in advance of all placements by them of radio-active materials on the moon and their purposes. States must also notify the Secretary General of any measures taken to prevent the disruption of the existing balance of the lunar environment. The Moon Agreement is not part of customary international law and therefore this provision only binds state parties. Liability for damage and responsibility are governed by the Outer Space Treaty and the Liability Convention under the Moon Agreement although under Article 14 States may enter into their own agreements regulating liability for their activities on the Moon.

A duty to notify other States of “any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those States” is provided for in Principle 18 of the Rio Declaration. Applied to space-related activities, it is clear that the notification requirement would extend to both natural and man-made hazards in the space environment to the territory of other States. However, Schwabach notes that the principle is aspirational in nature as does not as yet constitute a norm of international environmental law evidenced by state practice undertaken out of a sense of legal obligation.<sup>378</sup> Indeed, the *Lac Lanoux Arbitration*<sup>379</sup> indicates that in the absence of prior agreement to the contrary there is no onus on States to notify of a risk in the absence of actual proof that the activity will cause environmental harm or damage to the environmental interests of another State. There appears to be some academic dispute to whether the duty to provide notice and engage in consultations, imposed by general international law, is also to

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<sup>377</sup> Lachs, Manfred, *The Law of Outer Space*, Sijthoff, Leiden, pp.113-114.

<sup>378</sup> Schwabach, *supra*, 23.

<sup>379</sup> 24 ILR 101 (1957). See Sands, Philippe, *Principles of International Environmental Law*, p.463 *et seq.*

be considered a customary norm of international environmental law.<sup>380</sup> Both are found within the non-binding ILC draft articles on the prevention of transboundary harm from hazardous activities.

The ILC draft articles provide for timely notification of risk by the state of origin to the state likely to be affected, transmitting the available technical and all other relevant information on which the assessment is based.<sup>381</sup> The draft articles further envisage the exchange of information while an activity is carried out concerning that activity which is relevant to preventing significant transboundary harm or to minimising the risk thereof. The exchange may continue even after the termination of the activity.<sup>382</sup> However, due regard is had to national security interests, the protection of industrial secrets and intellectual property concerns in the exchange of all information in Article 14 which provides that where vital to such matters, information may be withheld. Under Art.17, states of origin must notify the state likely to be affected of an emergency concerning a risk-bearing activity and provide it with all relevant and available information. This must be done without delay.

Nonetheless the *corpus iuris spatialis* imposes an obligation require States to notify other States of any hazard detected by it to the astronauts of that State. It also appears that there is also a general duty to notify other States of any natural or man-made hazards likely to produce sudden harmful effects on the environment of those States. While these principles are to be lauded, practice demonstrated during the Cosmos 954 incident indicates a lack of actual adherence. Several months prior to the crash the U.S. government was aware of a real risk that the Soviet satellite could land in not only its own territory but also within Canadian territory but the Canadians were not notified of the risk.

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<sup>380</sup> See Wolfrum, Rüdiger, "Purposes and Principles of International Environmental Law," (1990) 33 *Ger. Y.B. Int'l L.* 308 at 313; Partan, Daniel, "The 'Duty to Inform' in International Environmental Law," (1988) 6 *B.U. Int'l L.J.* 43 at 83 and cf Dodansky, Daniel, "Customary (And Not So Customary) International Environmental Law," [1995] 105(3) *Global Legal Studies Journal* 105, at p.107.

<sup>381</sup> Article 8.

<sup>382</sup> Article 12.

### *13.2.2 Duty to Consult*

The Outer Space Treaty also envisages a duty to consult in Article IX which provides that if a State Party has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial bodies, it must undertake appropriate international consultations before proceeding with any such activity or experiment. It is envisaged that environmental damage which could interfere with other states' activities will come within the scope of this article though it will be noted that there is no obligation to consult where the harm does not have the potential to damage or interfere with other states. As Lachs notes, Art. IX does not set out the procedure to be followed nor the consequences if the consultations end in disagreement or if there is non-compliance with such agreement as might result.<sup>383</sup>

### *13.2.3 Power to Request a Consultation*

Article IX of the Outer Space Treaty further provides for a power to request a consultation by a state party which has reason to believe that an activity or experiment planned by another State Party in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon and other celestial bodies from that other state party. As is evident from the face of Art. IX, the power does not arise solely when the state party fears that its own activities in peaceful use and exploration would be hindered but applies when a state has any concern that another state's activities would cause harmful interference, nor does harmful interference have to be proven, it is sufficient if the potential harm could be demonstrated. Nonetheless, there is no power to restrict the other state's activity found in Art. IX.

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<sup>383</sup> Lachs, Manfred, *The Law of Outer Space*, p.116.

Similarly, Article 15 of the Moon Agreement provides for a power to request a consultation where a State Party which has reason to believe that another State Party is not fulfilling its obligations pursuant to the Agreement or where it is interfering with its rights. In such circumstances, the state receiving the request must enter into such consultations without delay. Any other State Party which requests to do so will be entitled to take part in the consultations. Each State Party participating in such consultations must seek a mutually acceptable resolution of any controversy bearing in mind the rights and interests of all States Parties. The Secretary-General of the United Nations must be informed of the results of the consultations and will transmit the information received to all States Parties concerned.

If the consultations do not lead to a mutually acceptable settlement which has due regard for the rights and interests of all States Parties, the parties concerned shall take all measures to settle the dispute by other peaceful means of their choice appropriate to the circumstances and the nature of the dispute. If difficulties arise in connection with the opening of consultations or if consultations do not lead to a mutually acceptable settlement, any State Party may seek the assistance of the Secretary-General, without seeking the consent of any other State Party concerned, in order to resolve the controversy. A State Party which does not maintain diplomatic relations with another State Party concerned shall participate in such consultations, at its choice, either itself or through another State Party or the Secretary-General as intermediary.

The ILC draft articles on the prevention of transboundary harm also provide for an obligation to consult at the request of any State concerned, with a view to achieving acceptable solutions regarding measures to be adopted in order to prevent significant transboundary harm or at any event to minimize the risk thereof.<sup>384</sup> The States concerned must agree on a reasonable time frame for the consultations at their commencement. If the consultations fail to produce an agreed solution, the State of origin must nevertheless take into account the interests of the State likely to be

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<sup>384</sup> Article 9(1).

affected in case it decides to authorize the activity to be pursued, without prejudice to the rights of any State likely to be affected.<sup>385</sup>

Solutions must be based on an equitable balance of interests<sup>386</sup> including all relevant factors and circumstances, such as the degree of risk of significant transboundary harm and of the availability of means of prevention, minimization or repair; the importance of the activity, taking into account its overall advantages of a social, economic and technical character for the State of origin in relation to the potential harm for the State likely to be affected; the risk of significant harm to the environment and the availability of means of preventing such harm, or minimizing the risk thereof or restoring the environment; the degree to which the State of origin and, as appropriate, the State likely to be affected are prepared to contribute to the costs of prevention; the economic viability of the activity in relation to the costs of prevention and to the possibility of carrying out the activity elsewhere or by other means or replacing it with an alternative activity; the standards of prevention which the State likely to be affected applies to the same or comparable activities and the standards applied in comparable regional or international practice.<sup>387</sup>

The balancing approach would be of particular value in relation to space activities allowing due weight to be had to the importance of the activity for example its impact on telecommunications, disaster management or deep space research and also the balance between the cost of prevention (for example of space debris) and the inability for the activity to occur elsewhere as well as the insurance that most States require of their nationals' activities whether as a prerequisite of a launch licence or as a condition thereto.

The ILC draft articles also provide for a power to request a notification where a State has reasonable grounds to believe that an activity planned or carried out in the State of origin may involve a risk of causing significant transboundary harm to it.<sup>388</sup> The grounds for the belief must be provided to the State of origin. However, in relation to

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<sup>385</sup> Article 9(3).

<sup>386</sup> Article 9(2).

<sup>387</sup> Article 10(a)-(f).

<sup>388</sup> Article 11.

this obligation, the State of origin may still find that it is under no obligation to provide notification. In such a case, the State must so inform the requesting State within a reasonable time and provide a documented explanation setting forth the reasons for that finding. If this finding does not satisfy that State, at its request, the two States must promptly enter into consultations. Significant leverage is given to the requesting State during these consultations and if it so requests, the State of origin must arrange to introduce appropriate and feasible measures to minimize the risk and, where appropriate, to suspend the activity in question for a reasonable period. This is of less value where the risk of transboundary harm arises from debris from a space object either released in outer space or falling off during launch or re-entry while in airspace given the adoption of space debris mitigation guidelines. States, regardless of whether the state of origin or not, must provide the public likely to be affected by an activity within the scope of the present articles with relevant information relating to that activity, the risk involved and the harm which might result and ascertain their views.<sup>389</sup> There is no equivalent provision in the *corpus iuris*.

## **14. Responses to Actual Environmental Damage**

The responses to actual environmental damage vary with the party or entity seeking the remedy. In the case of actual environmental damage within the jurisdiction of a State or to its quasi-territory, compensation, restitution in kind or remediation will be the primary remedy sought.

### **14.1 Compensation and Restitution<sup>390</sup>**

As detailed previously, launching states are liable in damages under the provisions of the Outer Space Treaty 1967 and the Liability Convention. There is a further obligation to engage in reparation under general principles of international law which

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<sup>389</sup> Article 13.

<sup>390</sup> See generally Boyle, Alan, "Reparation for Environmental Damage in International Law: Some Preliminary Problems," in Bowman, Michael and Boyle, Alan (eds), *Environmental Damage in International and Comparative Law* (OUP, 2002), 17.

are applicable. In the seminal case *Chorzou Factory*, the obligation was formulated (albeit *obiter dicta*)<sup>391</sup> as follows:

The essential principle contained in the actual notion of an illegal act ... is that reparation must, so far as possible, wipe-out all the consequences of an illegal act and re-establish the situation which would, in all probability have existed if that act had not been committed. Restitution in kind, or, if this is not possible, payment of a sum corresponding to the value which a restitution in kind would bear, the award, if need be, of damages for loss sustained which would not be covered by restitution in kind or payment in place of it—such are the principles which should serve to determine the amount of compensation due for an act contrary to international law.<sup>392</sup>

*Chorzou* further provided that reparation must be in an adequate form and, as ‘an indispensable complement of a failure to apply a convention’, it need not be stated in the convention itself. States may therefore be liable for the breach of their duty under the *corpus iuris* to supervise their nationals’ activities in outer space and liable to make reparation, although the Treaty does not specifically incorporate such a provision. The application of the *Chorzou* is limited to relations between and among states and not within the state. International law does not prescribe the method or criteria for determining how reparation is to be made.<sup>393</sup> However, as reparation arises as a breach of a primary obligation, the consequences are attached *ab initio* to that breach.<sup>394</sup> Therefore it is the obligation imposed by the *corpus iuris* that gives rise to the duty to make reparation for such harm.

While the recovery of costs by States for environmental damage would appear to be within the scope of the *corpus iuris* and is demonstrated by practice albeit the lone instance of *Cosmos 954*, recovery by natural or legal persons for damage is not covered. States may choose to offer *ex gratia* payments to cover such damage. It is

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<sup>391</sup> The Claimant did not seek *restitutio in integrum*.

<sup>392</sup> *Chorzow Factory* Case PCIJ Ser. A, No. 13, at p.47.

<sup>393</sup> Boyle, *supra*, p.16.

<sup>394</sup> Combacau and Alland, “Primary and Secondary Rules in the Law of State Responsibility: Categorizing International Obligations,” (1985) 16 *NYb Int'l L.* 81 at 108, cited by Boyle, *supra*, p. 17.

unlikely that insurance would cover an instant of damage caused by space debris to the property on the surface of the earth considering it rather as an act of God. Nonetheless, the ILC Draft principles on Transboundary Harm offer a structured solution. Under Principle 4, State are obligated to take all necessary measures to ensure that ‘prompt and adequate compensation’ is available for victims of transboundary damage caused by hazardous activities located within its territory or otherwise under its jurisdiction or control.<sup>395</sup> As such the principle may be applied to space activities falling under the control or within the quasi-territory of a state of registry. A victim for these purposes includes both natural and legal persons.<sup>396</sup> The measures envisaged in Principle 4 should include the imposition of liability on the operator or, where appropriate, other person or entity. The operator is any person in command or control of the activity at the time the incident causing transboundary damage occurs.<sup>397</sup> This is incorporates directly the polluter pays and shifts the primary obligation from the state to the party actually accountable. Significantly, liability is specifically stated not to require proof of fault.<sup>398</sup> Measures to be taken by States should include the requirement on the operator or, where appropriate, other person or entity, to establish and maintain financial security such as insurance, bonds or other financial guarantees to cover claims of compensation.<sup>399</sup> This reflects current practice in relation to space activity licensing regimes where insurance is either a prerequisite to obtaining a licence or a condition attaching thereto. Principle 4(4) further provides that in appropriate cases, these measures should include the requirement for the establishment of industry-wide funds at the national level. It remains to be seen if this approach would be most suited to liability arising from space debris. The possibility of a global fund may be more appropriate to space debris and is considered below. The draft principles contain the failsafe of state accountability, falling on the state of origin. Principle 4(5) provides:

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<sup>395</sup> Principle 4(1).

<sup>396</sup> Principle 2(f)

<sup>397</sup> Principle 2(g).

<sup>398</sup> Principle 4(2).

<sup>399</sup> Principle 4(3).



In the event that the measures under the preceding paragraphs are insufficient to provide adequate compensation, the State of origin should also ensure that additional financial resources are made available.

The US engages in a practice that would meet this principle in offering to cover losses above the insured amount arising from licensed space activities. The ILC Draft Articles on state responsibility<sup>400</sup> are also of interest in this regard. The articles which are examined in Part I do not preclude or limit their application to recovery for environmental harm. As Boyle notes, there is no inherent difficulty in applying those principles to environmental damage.<sup>401</sup>

The central difficulty in applying the draft principles to space activities is that it introduces another state which may bear accountability. Currently liability for damage rests on the launching state for damage caused by a space object. This is so regardless of whether the launching state or its nationals subsequent to launching transfer ownership and/or control of the space object causing the damage to another state or another state's nationals or whether there is a change in the state of registry. While France has addressed the issue of transferring space objects on to its registry, other states have been remarkably slow in adopting similar measures. Introducing a state of origin, with a definition turning on jurisdiction or control, may remove the burden of liability from the launching state to the current state. This may add an unnecessary degree of complication to the current system.

## **14.2 Remediation**

The costs issue of remediation in relation to space activities may render this response to environmental damage as economically prohibitive, although this depends on the kind and level of damage caused. Technological progress has not yet reached a stage where remediation in relation to the space environment, specifically space debris, where the cost-elimination ration makes it feasible to remove as oppose to salvage.

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<sup>400</sup> See Annacker, "Part Two of the ILC's Draft Articles on State Responsibility," (1994) 37 *German Yearbook Int'l L* 206.

<sup>401</sup> Boyle, *supra*, p.22.

This issue is considered more fully below. Remedial measures on the Moon and other celestial bodies may encounter the same difficulty although it depends on the kind of damage. Harm from littering as a result of debris, environmentally damaging mining activities, contamination of the lunar and other environments may all be subject to different levels of economic costs; the impact of a cost-benefit analysis would also assist in determining whether remediation is the optimal solution. Contamination of future resources such as fuels or water may be of graver import than the littering of the far side of the moon with debris. However, in relation to cultural property,<sup>402</sup> it is possible that remediation in the form of restoration may be appropriate. The instance of cultural property currently mooted is the original lunar landing site and first footprints.<sup>403</sup>

#### 14.2.1 Remediation and Space Debris<sup>404</sup>

While the optimum solution for space debris would be the removal of the current debris from GEO,<sup>405</sup> such a solution is neither financially feasible nor practical. The problem is exacerbated in GEO as the absence of atmospheric drag results in a long orbital life for debris.<sup>406</sup> In the words of Yasaka:

[O]nce the orbit is polluted by numerous number of debris, GEO loses its usefulness forever, unless effective action is taken to sweep them out. Unfortunately, there is no effective way to lessen the number of small debris in GEO.<sup>407</sup>

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<sup>402</sup> See Gillespie, *supra*, pp.92-101.

<sup>403</sup> See Darrin, Ann and O'Leary, Beth (eds), *Handbook of Space Engineering, Architecture and Heritage*, (CRC Press, Taylor and Hanson Group, 2009).

<sup>404</sup> See generally, Smirnov, Nickolay N. (ed.), *Space Debris: Hazard Evaluation and Mitigation*, (CRC Press Ltd, 2002).

<sup>405</sup> See Yasaka, T., "Geostationary Orbit Pollution and Its Long-Term Evolution" in Smirnov (ed.), *supra*, pp.113-132.

<sup>406</sup> See Yasaka, "Geostationary Orbit Pollution and Its Long-Term Evolution" in Smirnov, *supra*, p.113.

<sup>407</sup> See Yasaka, "Geostationary Orbit Pollution and Its Long-Term Evolution" in Smirnov, *supra*, pp.113-114.

However, in recent years the focus has shifted to the removal of minimum sized objects to prevent the so called ‘large-large’ collisions such as the collision between the Iridium 33 and Cosmos 2251 satellites on the 10<sup>th</sup> of February 2009. That collision fortunately occurred in low earth orbit at over speeds of over 15,000 mph and an approximate altitude of 490 miles above the surface of the Earth. Nonetheless, the orbital debris still poses a risk to other LEO satellites.<sup>408</sup> Deliberate destruction of satellites such as the Chinese ASAT test in January 2007 also increased dramatically the amount of debris in earth orbit. The removal of objects between 25 kilograms and 8 tonnes would significantly reduce the risk of large-large collisions and minimise the need for ASAT. Furthermore, such large-large collisions are more probable than large-small collisions or small-small collisions due to the collisional cross-section of large objects.<sup>409</sup>

### **14.3 The Forum for Disputes<sup>410</sup>**

The Liability Convention envisages that disputes be resolved through diplomatic channels or failing that through the establishment of a Tribunal. However, Forkosch considers that the International Court of Justice had jurisdiction by default over all direct and indirect outer space and interstellar space pollution.<sup>411</sup>

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<sup>408</sup> For a three dimensional statistical break-up model, see AGI, *Satellite Collision with a Statistical Breakup Model* available at <http://www.stk.com/corporate/mediaCenter/news/iridium-cosmos> (last visited August 1st, 2009).

<sup>409</sup> Carroll, Joe speaking at the Space Frontier Foundation’s *NewSpace 2009 Conference* at NASA’s Ames Centre, July 2009. See Foust, Jeff, “Putting a Bounty on Orbital Debris,” *The Space Review* July 27<sup>th</sup>, 2009.

<sup>410</sup> See generally Goh, *supra* and Viikari, *supra*, pp.285 *et seq.*

<sup>411</sup> *Outer Space and Legal Liability*, p. 147.

## 15. Responses to Anticipated Environmental Damage

The old adage ‘prevention is better than cure’ is a useful means of summing up the nature of the responses to environmental damage.<sup>412</sup> It is preferable both economically and practically to regulate the risk arising from environmental harm and minimise it at source than to retrospectively seek to resolve the damage after it has occurred. The trend at international level reflects this understanding and is particularly evident with regard to space debris where there is a strong movement evinced towards prevention and mitigation.

### 15.1 Prevention and Mitigation

However, the primary emphasis is less on remediation and more on identifying and tracking space debris, (work currently undertaken by NORAD, US Strategic Command and the US Space Surveillance Network)<sup>413</sup> and on the use of the UNCOPUOS guidelines on debris prevention and mitigation.<sup>414</sup> COPUOS sums up the problem in the following terms:

As the population of debris continues to grow, the probability of collisions that could lead to potential damage will consequently increase. In addition, there is also the risk of damage on the ground, if debris survives Earth’s atmospheric re-entry. The prompt implementation of appropriate debris mitigation measures is therefore considered a prudent and necessary step towards preserving the outer space environment for future generations.

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<sup>412</sup> See Mueller, Reinhard, “The Scope of Environmental Related Norms in Outer Space Law,” in Masson-Zwann, Tanya (ed), *Space Law: Views of the Future* (Kluwer Law International, London, 1988) 135, at p.141.

<sup>413</sup> See Committee on Space Debris of the National Research Council, *Orbital Debris: A Technical Assessment*, National Academy Press, 1995, pp.31-37.

<sup>414</sup> A/AC.105/890, Annex IV, Space debris Mitigation guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space.

The guidelines drafted by COPUOS were adopted by UN GA Resolution 62/217 and now constitute the UN Guidelines on Space Debris Mitigation.<sup>415</sup> The guidelines have a wide scope applying from mission planning and operation of newly designed spacecraft to orbital stages and, even existing spacecraft where possible. The measures are designed to mitigate the level of debris both in the near- and long-term.<sup>416</sup> They require that space systems be designed so as not to release debris during normal operations, or if this is not feasible, then to minimise the release.<sup>417</sup> The potential for break-ups during operational phases but where a condition leading to failure is detected, disposal and passivation<sup>418</sup> measures should be planned and executed to avoid break-ups.<sup>419</sup> At the mission planning stage, the probability of accidental collision with known objects during the system's launch phase and orbital lifetime should be estimated and limited. If the available orbital data indicate a potential collision, adjustment of the launch time or an on-orbit avoidance manoeuvre should be considered.<sup>420</sup> Intentional break-ups are to be avoided but if they are necessary, they should be conducted at sufficiently low altitudes to limit the orbital lifetime of resulting fragments.<sup>421</sup> All on-board sources of stored energy should be depleted or made safe when they are no longer required for mission operations or post-mission disposal.<sup>422</sup> This is to avoid break-ups caused by stored

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<sup>415</sup> See Williams, Maureen, "Outer Space" [2007] 18 *Y.B. Int'l Environmental L.* 272.

<sup>416</sup> A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.42.

<sup>417</sup> Guideline 1, A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.43.

<sup>418</sup> This involves the removal of all forms of stored energy, including residual propellants and compressed fluids and the discharge of electrical storage devices. See generally See Klinkrad, H., Martin, C., Walker, R. And Jehn, R., "Effects of Debris Mitigation Measures on Environmental Projection," in Klinkrad, *supra*, p.165 at p.168 where it is noted that this is practiced by many systems including H-II, Delta, Titan, Ariane, Soyuz, Proton and Long March 4 (at p.170).

<sup>419</sup> Guideline 2, A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, pp.43-4.

<sup>420</sup> Guideline 3, A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p. 44.

<sup>421</sup> Guideline 4, A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p. 44.

<sup>422</sup> Guideline 5, A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p. 44.

energy which is the cause of the majority of unintentional break-ups. The long-term presence of spacecraft and launch vehicle orbital stages in LEO post- mission is to be limited.<sup>423</sup> Similarly the final guidelines impose the same requirement with regard to the GEO.

The guidelines are not legally binding under international law and the guidelines themselves recognise that exceptions to the implementation of specific guidelines or elements of the guidelines may be justified in certain circumstances such as by the provisions of the *corpus iuris spatialis*.<sup>424</sup> Member States and international organizations are encouraged to voluntarily take measures, through national mechanisms or through their own applicable mechanisms, to ensure that the guidelines are implemented “to the greatest extent feasible, through space debris mitigation practices and procedures.”<sup>425</sup> Some states have done this directly; others have done so through their national space agency (for example, France and Russia)<sup>426</sup> although some of availed of both, for example the U.S.<sup>427</sup>

International intergovernmental agencies engaged in space activities have responded to the need for mitigation procedures. For example, the Inter-Agency Space Debris

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<sup>423</sup> Guideline 6, A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p. 45. See See Klinkrad, H., Martin, C., Walker, R. And Jehn, R., “Effects of Debris Mitigation Measures on Environmental Projection,” in Klinkrad, *supra*, p.165 at p.172.

<sup>424</sup> A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.43.

<sup>425</sup> A/AC.105/890, Annex IV, Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space, p.43.

<sup>426</sup> CNES, *Exigence de Sécurité – Débris Spatiaux : Méthode et Procédure*, MPM-51-00-12 Issue 1, rev.1; Anon., *Russian Aviation and Space Agency Branch Standard – General Requirements for Space Debris Mitigation* (RASA, 2000).

<sup>427</sup> Anon, *US Government Orbital Debris Mitigation Standard Practices*, 2001 (available at [http://orbitaldebris.jsc.nasa.gov/library/USG\\_OD\\_Standard\\_Practices.pdf](http://orbitaldebris.jsc.nasa.gov/library/USG_OD_Standard_Practices.pdf)); Anon, *NASA Safety Standard – Guideline and Assessment Procedures for Limiting Orbital Debris*, NASA-STD-8719.14 (with Change 3 from July, 2009) (available at <http://www.hq.nasa.gov/office/codeq/doctree/871914.pdf>).

Coordination Committee (IADC) has developed a set of mitigation guidelines.<sup>428</sup> Indeed, the UN guidelines are based on the technical content and basic definitions contained in the IADC guidelines but take account of the *corpus iuris spatialis*.<sup>429</sup> Also, ESA's objectives in the field of space debris were formulated with the express purpose of minimising the creation of space debris as well as to reduce the risk for manned and unmanned spaceflight.<sup>430</sup> Both the European Space Debris Mitigation Standard<sup>431</sup> and CNES standard<sup>432</sup> for mitigation permit the creation of a maximum of one space debris object from single payload launch or a maximum of two space debris objects from a multiple payload launch.<sup>433</sup>

## 16. Comparative Responses

Current law reflects is retroactive in nature and it is politically and legally efficient and economic to structure a system that is responsive rather than predictive in nature. Derivative liability as well as direct liability is imposed on the State. Jasentuliyana is critical of the *corpus iuris* for its failure to adequately deal with the activities of private actors as well as non-governmental entities with space debris implications.<sup>434</sup>

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<sup>428</sup> See A/AC.105/C.1/L.260. Practice by the US, Russia, Japan and Intelsat all demonstrate compliance with the IADC guidelines: see See Klinkrad, H., Martin, C., Walker, R. And Jehn, R., "Effects of Debris Mitigation Measures on Environmental Projection," in Klinkrad, *supra*, p.165 at p.188.

<sup>429</sup> A/AC.105/890, Annex IV, *Space debris Mitigation Guidelines of the Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space*, p.43.

<sup>430</sup> See generally, Flury, W., "European Space Agency Activities on Orbital Debris" in Smirnov, *supra*, p.25 and Klinkrad, H., et al, *ESA Space Debris Mitigation Handbook*, 2<sup>nd</sup> ed. (ESA/ESOC, 2003).

<sup>431</sup> *European Space Debris and Mitigation Standard*, Issue 1 rev.3, 2001.

<sup>432</sup> CNES, *Exigence de Sécurité – Débris Spatiaux : Méthode et Procédure*, MPM-51-00-12 Issue 1, rev. I.

<sup>433</sup> See Klinkrad, H., Martin, C., Walker, R. And Jehn, R., "Effects of Debris Mitigation Measures on Environmental Projection," in Klinkrad, *supra*, p.165 at p.166.

<sup>434</sup> Jasentuliyana, *supra*, p.141.

It merits comparing the current system in *corpus iuris* with regard to environmental damage with its terrestrial equivalents to see how this has been addressed elsewhere. While it is preferable to prevent the pollution from occurring initially, the laws of probability alone indicate that such prevention is not always possible. In such circumstances, it is desirable to consider a space-specific response to environmental harm. Although liability may arise for states, the issue here is that there is a means of guaranteeing remediation costs. While this may be incorporated a risk factor in insurance, the history of the insurance market illustrates that the market though currently stable covers high risk and can be faced with a deficit when risk actualises. In this regard, several alternate regimes come to mind however it is the oil pollution from vessels that bears the most striking parallels to the problem of space debris. Both may be caused by vessels owned and operated by parties other than states and both are the source of the pollution in the case of outer space, debris, and in the case of ships, vessel-source oil pollution. In the case of the latter, there is a long-established regime which will now be considered to evaluate its potential for an equivalent regime to deal with debris.

## 16.1 Addressing Liability for Oil Pollution

There are two international instruments that address liability for oil pollution, the Brussels International Convention on Civil Liability for Oil Pollution Damage 1992<sup>435</sup> and the Brussels International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage.<sup>436</sup> The Oil Fund Convention had its roots in the 1969 Civil Liability Convention<sup>437</sup> but deficiencies in that instrument in addressing both legal and financial aspects resulted in a

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<sup>435</sup> IMO/Leg.CONF.9/15.

<sup>436</sup> IMO/Leg.CONF.9/16. See Wilkinson, J., "Moving the Boundaries of Compensable Damage Caused by Marine Oil Spills," (1993) 5 *Journal of Environmental Law* 71 and Sands, *supra*, p.913 *et seq.*

<sup>437</sup> 973 UNTS 3. The 1969 Convention became known as the 1992 Convention following the coming into force of the 1992 Protocol.



recommendation from the Brussels Conference of 1969 to the IMO to establish an international fund system.

The 1992 Convention imposes liability on the ship owner for pollution caused by oil<sup>438</sup> escaping from his/her ship as a result of a collision in territorial waters. 'Pollution damage' includes compensation for the impairment of the environment, the cost of preventive measures, such further losses as arise as a consequence of taking preventative measures.<sup>439</sup> The measures must be reasonable and must be undertaken already or be due. Significant exemptions exist including war, intentional acts, governmental negligence and contributory negligence.<sup>440</sup> Between the Fund Convention, outlined below, and the 1992 Convention, the former takes priority.

The aims of the Fund Convention are three-fold. First to compensate for damage caused by oil pollution, secondly, to relieve shipowners of the additional financial burden imposed on them by the 1969 Civil Liability Convention subject to conditions designed to ensure compliance with safety at sea and other conventions and thirdly to give effect to related purposes.

The Convention established a fund which pays compensation to States and individuals who suffer due to oil pollution where it is not possible for those individuals to obtain compensation from the ship owner/their guarantor or if the compensation due from such owner is insufficient to cover the damage suffered. Therefore victims of oil pollution damage may be compensated above the level of the shipowner's liability. There is a financial limit imposed on the amount in the fund at any one time with the effect of there being a maximum liability for each incident. These limits have been raised under subsequent Protocols. However, where no liability may be imposed on the shipowner or where the owner cannot meet their liability, the Fund will pay the entire amount of the compensation due, with a much higher financial limit for the particular incident applied. Damage that may engender

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<sup>438</sup> See Art.2 of the 1992 Convention.

<sup>439</sup> Art.2(3) of the 1992 Convention.

<sup>440</sup> Arts III(2), III(3) and IV of the 1992 Convention.

compensation under fund may occur on land or within territorial waters or in respect of measures taken by a Contracting party outside its territory.

A new International Oil Pollution Compensation Fund was established in 1992 which had higher limits in place and was intended to replace the 1971 regime with parties to the 1992 Protocol ceasing to be parties to the original regime. Nonetheless, the two funds continued to operate in parallel as several States did not ratify the 1992 Protocol. Under the 1992 Protocol, the maximum amount of compensation payable from the Fund for a single incident was 135 million SDR (about US\$173 million). But this maximum amount could be increased to 200m SDR (about US\$256 million) if three States contributing to the Fund receive more than 600 million tonnes of oil per annum. These limits were in turn amended and increased in 2000 to 203 million SDR (US\$260 million) and to a higher maximum of 300,740,000 SDR (US\$386 million), if three States contributing to the Fund receive more than 600 million tonnes of oil per annum. Following a diplomatic conference, the 2000 Protocol wound-up the 1971 Fund. It ceased to operate in 2002 leaving the 1992 regime in operation. In 2005, the 2003 Protocol came into force. This establishes an International Oil Pollution Compensation Supplementary Fund. The maximum amount of compensation available for a single incident under the supplementary Fund is 750 million SDR (just over US\$1,000 million) including the compensation paid under the existing regimes. The cost of the Contracting State's contribution to the Supplementary fund is to be born by legal or natural persons who receive total quantities of oil exceeding 150,000 tons (with a minimum aggregate receipt of 1,000,000 tons of contributing oil applied for each Contracting State).

What is significant about the Fund system is its approach to applying the polluter pays principle to liability. The burden of paying the contributions is born by those who engage in the transportation of the product that is the source of the pollution. In this way, the imposition of the financial burden provides an economic limitation to the level of the risk-laden activity. This is the ultimate benefit to applying the polluter pays theory to the imposition of financial liability. The cost of the actualisation of risks associated with the activity are shouldered by the party that has chosen freely to engage in that activity, which although morally non-culpable, has by that choice exposed their neighbour to a risk they have not chosen to bear. In contrast,

the current space regime does not apply the polluter pays principle in the stricter sense of imposing liability on the party directly responsible. Instead, the polluter pays principle is imposed on the party bearing derivative liability, rather than direct liability, i.e. the State for its failure to exercise its international responsibility to supervise and/or its derivative liability as a launching state.

## 17. Conclusion

The definitions adopted of environmental harm and damage in international law are sufficiently broad to be applied to harm in the space environment. The three criteria for environmental damage for legal regulation are: a physical relationship between the activity concerned and the damage, human causation and a certain threshold of severity that calls for legal action are the three necessary elements for the regulation.

Pollution is also widely defined that space-specific examples, such as space debris, may come within its scope. Space debris remains a growing concern for all involved in launching activities, public, private, civil or military. There is a need for international regulation in the area as space represents a global commons. Furthermore, it will lead to increased synchronisation between the existing measures and the proposed development. Current regulation does exist at international level. Liability may arise where actual damage is caused to a State or its natural or juridical persons though this may be hampered by the ability to in fact identify the launching state. But, where damage is caused to space itself and no State or individuals are effected no liability will arise, this may lead to yet another example of the tragedy of the commons.<sup>441</sup> For this reason, the liability provisions while useful do not safeguard the environment sufficiently. Other rationales for environmental regulation include intergenerational equity, economic rationales, self-interest and the protection of the space environment on its own merits.

Both substantive and procedural regulation of environmental issues occurs in the corpus iuris, the Moon Agreement and general international environmental law.

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<sup>441</sup> See Hardin, Garrett, "The Tragedy of the Commons," *Science* 12<sup>th</sup> December 1968, p.1243.

Aside from liability, Art. IX of the Outer Space Treaty places an onus on States to refrain from contaminating Earth. Under the general environmental law, the obligation recognised in *Trail Smelter* binds States even with regard to space activities. There are also several principles specific to international environmental law that are of interest in the regulation of space activities. The precautionary and prevention principles are of value in illustrating a means of addressing regulation when there is scientific uncertainty surrounding the consequences of a technology, its use or effects on the environment. The polluter-pays principle also provides a means of assessing the appropriate party to bear the ultimate cost of remediating environmental harm.

Procedural duties include the duty to notify or inform, the duty to consult and the power to request a consultation. While these are binding obligations, the breach of which may give rise to an internationally wrongful act, their value is primarily of interest to States who have the potential to be affected by the acts of other States or their nationals and therefore may benefit from being put on notice.

Responses to actual environmental damage include seeking compensation for damage arising under the *corpus iuris* or general principles. The cost of remediation may also be sought. However, prevention is better than cure and while it is accepted that this is not always possible, the emphasis at international level with regard to space debris emphasises prevention and mitigation measures.

A comparative analysis with international maritime law illustrates another means of responding to environmental harm. The 1992 Fund Convention demonstrates a practical application of the polluter-pays principle and works in parallel with insurance. Such a scheme for pooling the cost of risk actualisation amongst those whose activities give rise to the risk in the first place could be adapted to deal with space launch, in-orbit and re-entry operators that cause or contribute to space debris. Such operators would pay a sum relative to the number of launches and the risk of debris the launch or re-entry vehicle or in-orbit object poses, taking account of adherence to space debris prevention and mitigation guidelines.

As Tsiolkovsky observed, “[e]arth is the cradle of man but man cannot live in the cradle forever.” But where goes man, the law must follow and while the application of the law cannot remain bound to earth, earth-bound concepts can be applied to law in outer space.

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