MANFRED LACHS SPACE LAW MOOT COURT COMPETITION 1996

PARLIVIA V. CALIFORNIUM, *ET AL*

Case Concerning Liability for Commercial Space Endeavors

1. INTRODUCTION

The finals of the 5th Manfred Lachs Space Law Moot Court Competition were held in Beijing during the IISL Colloquium. Preliminary competitions had been organized in Europe by the European Centre of Space Law (ECSL) of ESA, and in the US by the Association of US Members of the IISL. The winners of these preliminaries were the University of Helsinki, Finland (Anna Markkanen and Satu Heikkilä) for Europe, and the University of Wyoming (Bastiaan Coebergh and Joseph Richer) for the USA. They met in Beijing before a bench composed of Judge Chr. Weeramantry, Judge G. Herczegh and Judge V. Vereshchetin of the International Court of Justice. The University of Helsinki won the competition. Financial and organizational support for the competition were granted by the Chinese Foreign Ministry, the University of Beijing, Air China and KLM Royal Dutch Airlines. ECSL and AUSMIISL sponsored the teams' travel to Beijing. Hereunder follow the case, written by Pamela Meredith, and the briefs of the winning teams.

2. THE PROBLEM

Issues presented:

1) Whether a claim can be presented under the Liability Convention while arbitration is in progress; 2) Whether a contractual waiver precludes recovery for satellite loss; 3) Whether a claimant State may recover lost revenues and refund of the launch price under the Liability Convention; and 4) Apportionment of liability

Statement of Facts

On May 1, 1998, the Ministry of Industry ("MI") of Parlivia, entered into a launch contract with ISE Enerkru, Ltd. ("ISEE"), a joint venture of International Space Enterprises, Inc. ("ISE") of the Republic of Californium and NPO Enerkru of the Republic of Ukrastan. The contract provided for the launching of MI's satellite, *Environsat,* on Enerkru's *Progyia* launch vehicle. *Progyia* launch vehicles are marketed worldwide by ISEE from its headquarters in the Pleasant Islands.

Parlivia, through MI, had contracted with a local entity to build *Environsat*, a remote sensing satellite to be used for environmental monitoring and for forestry and agricultural applications. Data acquired through the satellite would be used by MI and also would be sold to private entities in Parlivia, as well as to foreign governments.

On April 8, 2000, *Progyia*, with *Environsat* on board, lifted off from its launch pad at the brand new commercial launch site at Cape Kou in Patalia. The two-stage *Progyia* placed *Environsat* in its intended 800 km equatorial orbit.

Due to a thruster malfunction, the *Progyia* second stage remained in an orbit very close to that of *Environsat.* After the initial separation of the *Progyia* second stage from *Environsat* through a spring mechanism (which caused the objects to separate with only a very small distance), ISEE intended to perform 1) a collision avoidance maneuver and 2) a re-orbit assist maneuver. If successful, these maneuvers would have lowered the perigee of the rocket stage to 250 km. The maneuvers were to be accomplished by firing of small thrusters on the *Progyia* second stage, but because of a software error, the thrusters failed to ignite. Neither the launch contract, nor its technical annexes specified how the separation of the *Progyia* second stage would occur.

On July 6, 2000, the *Progyia* second stage exploded due to overpressurization in its propellant tanks caused by the excess propellant remaining after the thruster malfunction. Over one-hundred pieces of debris generated by the explosion were distributed into a variety of orbits, many of which intersected the *Environsat* orbit.

Thirty-five days later, a small fragment of the exploded rocket body hit and completely disabled *Environsat.*

A subsequent failure investigation conducted by a Safety Review Board appointed by ISEE revealed that the software error that prevented the thrusters from firing resulted from a computer coding error made by Dr. Yelkov, an Enerkru computer programmer. Dr. Yelkov had entered an erroneous command code for thruster ignition. The code determined the time of activation of the battery-powered valves which would cause the propellant to flow through the propellant lines and into the combustion chamber and ignite the thrusters. The correct time code was "1.2×10^2" seconds, that is, 120 seconds. Instead, the erroneously encoded time was "1.2×10^6" seconds, *i.e.*, 1.2 million seconds, or 14 days. By this time, the batteries were dead and the thrusters never fired.

MI had purchased launch and in-orbit insurance through its insurance broker, Will McCoone, Ltd., covering the entire value of the satellite ($90 million) and extending until two years after launch. The insurance underwriters compensated MI under this policy.

MI also had purchased a launch price refund guarantee as part its launch contract with ISEE. MI now claims refund of the launch price in the amount of $50 million from ISEE and its parent ISE. Both ISEE and ISE reject MI's claim for a refund.

A group of insurance underwriters registered in Parlivia known as Space Insurers of South America (SISA), which had paid $10 million of MI's insurance claim, have turned to ISEE and ISE with subrogation claims for their respective insurance payments. They claim ISEE, ISE, and Enerkru acted with negligence and gross negligence in 1) failing to perform the separation

maneuvers that would have lowered the orbit of the *Progyia* second stage; and 2) failing to vent or deplete the propellants contained in the rocket stage. ISEE and ISE reject the claim, contending that SISA is precluded under the launch contract between MI and ISEE from bringing the claim.

Both MI's and SISA's claims were submitted to arbitration, since the ISEE-MI contract provided that all disputes thereunder would be settled in this manner. The arbitration proceeding has yet to be concluded.

Concerned that ISEE and ISE would be unable to pay for the damage in a timely fashion even if MI and SISA were to prevail on their respective claims in arbitration, the government of Parlivia asserted claims on behalf of MI and SISA against the governments of Californium, Ukrastan, the Pleasant Islands, and Patalia under the Liability Convention of 1972 for 1) loss of the satellite ($90 million), 2) the launch price ($50 million), and 3) loss of revenues ($20 million). There is no agreement among these four respondent States as to apportionment of potential liability or damages. All four respondent States have rejected Parlivia's claims.

The parties failed to settle the matter through diplomatic channels, as called for by the Liability Convention. Neither party requested the establishment of a Claims Commission under the Liability Convention. To resolve the matter finally, the parties have agreed to refer the case to the International Court of Justice for resolution of the issues stipulated below. There are no issues as to the Court's jurisdiction.

The Court has appointed a Special Master to examine the highly technical issues involved in evaluating fault under the Liability Convention. This Special Master will report to the Court. In the interim, the Court has requested the parties to address the following issues:

Issues Presented Before the ICJ

1) Whether Parlivia may claim under the Liability Convention while the arbitration proceeding is in progress;
2) Whether the ISEE-MI contractual waiver regime precludes Parlivia's recovery of damages for the satellite loss;
3) Whether damages recovered under the Liability Convention may include a) loss of revenues, and b) refund of the launch price (including to what extent the Refund provision in ISEE-MI contract is relevant); and
4) Assuming that the Court finds that ISEE's conduct of launch operations meet the standard of "fault" under the Liability Convention, whether all four respondent States are liable, and how damages to Parlivia should be apportioned among respondent States, if any, found liable under the convention.

Instructions to the Students

1) You should prepare one memorial for the Applicant (Parlivia), and one memorial for the four Respondent States (Californium, *et al*);
2) You should assume that all of the parties to this dispute are parties to all of the relevant international treaties and conventions;
3) You should cite and discuss the relevance of *Martin Marietta v. INTELSAT* (763 F. Supp. 1327 (1991), *aff'd. in part, den. in part,* 991 F. 2d 94 (DC Cir. 1992)) and *Appalachian Insurance Co. v. McDonnell Douglas* (262 Cal Rptr. 716 (1989), copies of which will be provided to the European schools which register for the competition; and
4) You should *not* engage in a discussion of whether ISEE's conduct of launch operations was negligent/culpable (the fault issue). This issue will be addressed by the Court later when it has received a report from the Special Master. The report will not be part of this problem.

Contract between ISE Enerkru, Ltd. ("ISEE") and the Ministry of Industry of Parlivia ("MI") for the Launching of Environsat (Excerpts)

ARTICLE 1 -- DEFINITIONS (Excerpts)
1.1. "Associates" shall mean any individual or entity, governed by public or private law, who shall act, directly or indirectly, on behalf of one party in the fulfillment of the obligations undertaken by such Party in this Contract, for example, but without limitation, the personnel of each of the Parties, their suppliers and contractors, including persons who shall act on behalf of such party upon the fulfillment of its obligations or else during Launch Preparations.
1.2. "Best Efforts" shall mean diligently working in a good workman-like manner as a reasonably prudent Launch Provider.
1.3. "Customer" shall mean MI.
1.7. "Launch" means intentional ignition of the *Progyia* Launch Vehicle.
1.8. "Launch Failure" shall mean the failure of the to accomplish the Launch Mission.
1.9. "Launch Mission" shall mean the launch of the Spacecraft for purposes of enabling said Spacecraft to carry out its operational objectives.
1.10. "Launch Provider" shall mean ISEE.
1.11. "Launch Services" shall mean the services to be provided by Launch Provider under this Contract.
1.12."Launch Vehicle" shall mean the *Progyia* launch vehicle provided by Launch Provider under this Contract.

ARTICLE 2 -- CONTRACTUAL DOCUMENTS
2.1. This Contract shall consist of the following documents, which shall be legally binding upon the Parties:
2.1.1. Terms and Conditions as expressed in Articles 1-30;
2.1.2.Appendix A, Launch Services Technical Specifications;
2.1.3. Appendix B, Customer Technical Commitments; And
2.1.4. Appendix C, Interface Control Document.

ARTICLE 3 -- LAUNCH SERVICES

3.1. Launch Provider shall use its Best Efforts to launch Customer's Spacecraft as specified in APPENDIX A and in accordance with the Launch Mission.

ARTICLE 13 -- REFUND (Excerpts)

13.1. A Refund Guarantee is hereby purchased by MI, the charges of which are included in the Contract Price set forth under ARTICLE 7, Prices for Launch Services.

13.2. In the event of a *Progyia* Launch Failure, Customer shall be entitled to a Refund of the Launch Price.

13.5. The Refund provided for in this Article 13 shall constitute the sole and exclusive remedy available to Customer for any Launch Failure.

ARTICLE 15 -- WAIVER OF CLAIMS (Excerpts)

15.1. Launch Provider hereby waives any and all claims against Customer and against Customer's Associates, directors, officers, servants, agents, contractors, and subcontractors, for any property damage it may sustain and for any bodily injury or property damage sustained by its own employees resulting from Launch Services. This provision applies regardless of whether the claim arises under tort, contract or any other theory of liability.

15.2. Customer hereby waives any and all claims against Launch Provider and against Launch Provider's Associates, directors, officers, servants, agents, contractors, and subcontractors, for any property damage it may sustain and for any bodily injury or property damage sustained by its own employees resulting from Launch Services. This provision applies regardless of whether the claim arises under tort, contract or any other theory of liability.

15.3. Launch Provider and Customer shall each be responsible for and shall release the other Party from liability for any property damage they respectively sustain and for any bodily injury or property damage sustained by its employees resulting from Launch Services. Each party shall purchase the insurance it deems necessary to protect its interests against the risk of damage for which claims are waived and releases are made under this Article 15.

15.6 The reciprocal waivers provided for in this Article 15 shall extend to all indirect and consequential damages . . . .

ARTICLE 16 - THIRD PARTY LIABILITY

(Excerpts)

16.1. Launch Provider shall procure and maintain Third Party liability insurance to protect Launch Provider, Customer, the Kingdom of Patalia, the Republic of Ukrastan, the Commonwealth of the Pleasant Islands, the Republic of Californium, and their respective Associates and contractors and Subcontractors arising out of or resulting from Launch Services. Such liability insurance shall name said parties as additional insureds.

ARTICLE 17 -- LIMITATION OF LIABILITY

17.1. Launch Provider's Liability to Customer and its Associates and contractors and subcontractors, whether arising under contract, tort or any other theory of liability, shall not include any loss of use or loss of profit or revenue or any other indirect, special, consequential, or incidental damages. In no event shall Launch Provider's liability to Customer for any claim arising out of a particular Launch exceed the price for Progyia Launch Services as provided for in Article 7, Prices for Launch Services. SUBJECT TO THE REFUND GUARANTEE, LAUNCH PROVIDER HAS NOT MADE NOR DOES MAKE ANY REPRESENTATION OR WARRANTY, WHETHER EXPRESS OR IMPLIED, WITH RESPECT TO THE DESIGN, OPERATION, CONDITION, QUALITY, SUITABILITY OR MERCHANTABILITY, OR FITNESS FOR USE OR FOR A PARTICULAR PURPOSE.

ARTICLE 23 -- DISPUTE SETTLEMENT

(Excerpts)

23.1. The Parties shall endeavor to reach an amicable settlement of any dispute or controversy . . . . If such a settlement cannot be reached, the Parties shall submit the dispute or controversy to arbitration . . . .

3. WINNING BRIEFS

A. MEMORIAL FOR PARLIVIA

AGENTS

Bastiaan Coebergh, Joseph Richer

ARGUMENT

I. Parlivia may present a tort claim under the Liability Convention while the contract dispute is in arbitration.

A. The launch services contract between MI and ISEE was fulfilled, and the Liability Convention clearly allows a launching state to submit a claim for adjudication while arbitration is proceeding.

The Applicant is not bound by the contract between ISE Enerku, Ltd. ("ISEE") and the Ministry of Industry of Parlivia ("MI") for the launching of Environsat ("MI- ISEE agreement"). The contract at issue is not a treaty or even an international agreement. Rather, it is a private commercial contract between a government organization and a company.[1] Based on the record, it cannot be said that the parties intended to create obligations in international law.[2] Therefore, the obligations in the contract cannot be imputed to Parlivia.

However, if this Court finds the contract to be an international agreement, Parlivia is not bound by it under the "full powers" doctrine. As a general rule, a person representing a state can bind the state to a treaty if "it appears from the practice of the States concerned or from other circumstances that their intention was to consider that person as representing the State for such purposes."[3] The contract is not in any way an "international agreement having the character [in fact and in law] of a treaty or convention."[4] Even if one would use the term "treaty" in its broadest sense,[5] MI was not an agent with actual or apparent authority[6] to bind Parlivia to this contract. There is no privity of contract between Parlivia and the four respondent states.[7] Therefore, Parlivia is not bound by the MI-ISEE agreement.

Moreover, the contract was fulfilled. ISEE ignited and launched the two-stage *Progyia* launch vehicle with *Environsat* on board. *Progyia* placed the *Environsat* satellite in its intended orbit. Then, the *Progyia* second stage separated from *Environsat* by the use of a spring mechanism. Through these actions, ISEE carried out the "Launch" and completed the "Launch Mission" as defined in article 1 of the contract.[8] The subsequent occurrences, which in the end made *Environsat* useless and incapable of carrying out its intended operational objectives, were not part of the "Launch Mission." Neither the launch contract nor its technical annexes specified how the separation of the *Progyia* second stage would occur. Thus, the contract was obviously not intended to cover occurrences subsequent to the actual separation of *Progyia* from *Environsat*.[9] One could even argue that the launch contract only extended to the intentional ignition.[10] Therefore, ISEE's "Launch Mission" was successfully completed.[11] Accordingly, the contract, including its dispute settlement provisions, does not apply to the issue at hand.

Instead, the Liability Convention[12] is applicable in the case *sub judice*. Until *Progyia* and *Environsat* separated, they obviously formed one "space object" as defined in the Convention.[13] However, after separation, approximately four months passed before *Environsat* was hit by a fragment of the exploded *Progyia*. The definition of "space object" is not static[14] and should be liberally construed "in favor of an innocent victim."[15] Therefore, at the time of the collision, the *Progyia* fragment and *Environsat* constituted two separate "space objects" under the Liability Convention.

Article XI(1) of the Convention advances a "fundamental and sweeping denial of traditional local remedies requirements."[16] Hurwitz remarked in this regard: "The effect of this [exception] is that the process of international claim settlement will be speeded up. This is a positive result in line with the victim orientation of the Convention."[17]

While this exception is to a certain extent qualified by article XI(2), it is certainly broad enough to encompass this situation. Article XI(2) provides that a state cannot present a claim under the Liability Convention when an action has been brought "under another international agreement **which is binding on the States concerned**."[18] As was established above, it does not appear from the record that MI's negotiator had actual or apparent authority to bind Parlivia to this contract, and there is no privity of contract between Parlivia and the Respondent states.[19] Therefore, Parlivia can bring this claim before this Court at this time under article XI(1) of the Liability Convention.

In addition, the Liability Convention's focus on the well-being of the victim and on establishing a swift procedure to make the victims whole should lead to an admission of Parlivia's claim at this time. Article X(1) poses a one year Statute of Limitations, measured from time of occurrence. Parlivia is concerned that ISEE and ISE would be unable to pay for the damage in a timely fashion even if MI and SISA were to prevail in their arbitration claims. Also, if Parlivia would have to wait for the arbitration procedure to conclude, the Liability Convention's Statute of Limitations would almost certainly have run[20] since the arbitration procedure apparently has no tolling effect.

B. General principles and policies of international law indicate that Parlivia should be allowed to proceed with its claim before this Court at this time.

A study of the law of the sea regarding the settlement of disputes is "of specific relevance in our context,"[21] because maritime law has many similarities to space law.[22] Neither the record nor the contract reveal where the arbitration was brought or what procedure is being followed. Under the Law of the Sea Convention,[23] parties can agree "at any time" to adopt a special method for settling their dispute,[24] even after a dispute has arisen and one of the procedures under the Convention has been

started. Also, if the procedure chosen by the parties does not lead to a binding decision, a party to the dispute can resort to the institutions under the Law of the Sea Convention to resolve the dispute.[25] The contract at issue does not indicate that the arbitration procedure will lead to a binding decision. Parlivia wants to bring this action under the Liability Convention against four Respondent states which are not parties to the contract. In this situation, the possibility of one state going to an international court against other states exists.[26]

Because the text of the Draft Convention on the Settlement of Space Law Disputes[27] follows "as closely as possible" the approach under the Sea Convention,[28] this Court should adhere to the approach in the Law of the Sea Convention mentioned above. This inescapably leads to the conclusion that Parlivia can bring the action under the Liability Convention at this time before this Court while the arbitration proceeding between the parties to the MI-ISEE agreement is advancing.

C. Even if this Court finds that the launch was not completed and the contract applies, Parlivia may bring its claim under the Liability Convention at this time.

Generally, written arbitration agreements are enforced and broadly interpreted.[29] However, this does not mean that the arbitration clause at issue applies in all instances. First, it appears from the record that the parties did not agree to have their dispute **finally settled** by arbitration but only to **submit** it to arbitration.[30] This already happened, so the parties to the agreement received what they bargained for. Now, the states have agreed to refer the case to this Court. The Respondents have not made their acceptance of this Court's jurisdiction subject to any reservations covering the dispute currently in arbitration. Further, nowhere does it appear that the parties to the contract wanted their disputes to be arbitrated to the exclusion of any other concurrent or consecutive mode of conflict resolution. In such a situation, "[this] Court should not consider a legal dispute as non-justiciable solely because negotiations or other means of settlement are currently in progress or because they have not been exhausted."[31] Therefore, Parlivia's claim under the Liability Convention is admissible before this Court.

The parties to the contract agreed that "**any** dispute or controversy" would be arbitrable.[32] However, it is not clear from the language of the instrument whether this means any dispute **arising under** the contract or any dispute **in connection** with the contract. "Arising hereunder" has been held to indicate a narrow arbitration clause,[33] while "in connection with this Agreement" has been construed to embrace every dispute between the parties having a significant relationship to the contract regardless of the label attached to the dispute.[34] Since the parties did not include the "in connection with" language in the contract, they intended only to cover contractual disputes and not quasi-contractual or tort disputes. Therefore, this Court should consider the tort claims.[35]

The often proffered apparent advantages of the arbitral process on a national level do not apply to the international process.[36] Further, "[e]xperience seems to show that rather than impeding settlement, litigation may serve as a spur to negotiation."[37] Unlike an arbitrator, this Court "can deal as expeditiously with a case as the parties will allow."[38] Moreover, this Court's role would be in danger of becoming highly political and speculative if it had to weigh the consequences of a legal ruling for an eventual settlement.[39] Thus, as a matter of general public policy, it is not desirable to let the arbitration procedure have a staying effect on the proceedings before this Court.

Alternatively, strong public policy considerations dictate that the matter at hand be declared non-arbitrable.[40] Some nations forbid arbitration of "all matters in the realm of public policy."[41] When *Progyia* exploded, it did much more than damage *Environsat*: it brought about significant environmental orbital damage. The explosion generated a large amount of space debris[42] which essentially was dumped in a variety of orbits.[43] Currently, space debris has become a major problem,[44] and any occurrence adding to the problem should be approached with the utmost care as a matter of public policy.[45] Since any existing arbitration institution would be unable to handle this issue, and since it is important that a court give an authoritative decision on the issue, this Court should consider this matter non-arbitrable. Even if this Court finds the contractual issues arbitrable, the tort issues should be declared non-arbitrable due to their different nature.

II. The contractual waiver regime does not preclude Parlivia's recovery of damages for the satellite loss.

A. Since the MI-ISEE contract does not apply to Parlivia's current action against the four Respondent states, the MI-ISEE waiver provisions do not have any restrictive effect on Parlivia's ability to recover its damages for the satellite loss.

As argued above (Part I.B), the collision between the *Progyia* fragment and *Environsat* should be characterized as a collision in space under Article III of the Liability Convention rather than a "Launch Failure" under the MI-ISEE contract. This agreement was fulfilled when *Progyia* separated from *Environsat*. The additional removal of the second stage from Environsat's orbit was ISEE's duty in tort as a reasonable launch provider under the Liability Convention, not a contractual duty.

This Court can take judicial notice of municipal law rules and principles.[46] Therefore, a discussion of decisions of United States courts in cases similar to the one at hand is relevant "as an indication of policy and principles."[47] In Appalachian Insurance[48] and Martin Marietta,[49] which were both decided under the terms of the launch contract, the satellites never reached the intended orbit. In both cases, the boosters from the respective rockets already failed on the way to the satellite's intended orbit.[50] Our case is distinguishable because the rocket did take the satellite to its intended orbit before physically separating from the satellite. A subsequent failure of the rocket boosters to distance the

rocket from the satellite rendered the satellite useless. This strongly indicates that after bringing the satellite to its intended orbit and physically separating, the launch mission was over. One could even argue that the launch contract only extended to the intentional ignition and no further.[51]

B. Even if this Court should find that the MI-ISEE agreement controls this situation, the cross waivers contained in that contract do not preclude Parlivia from recovering its damages for the loss of Environsat.

Even if this Court would find that the contract is applicable, the contractual waiver regime is not enforceable against Parlivia. Neither the record nor the contract makes clear whether the parties agreed on what law should control the launch agreement. Thus, it is not readily apparent according to which principles this contract should be interpreted. Several U.S. courts have given guidance to launch contract interpretation by establishing case law precedents with important implications for space activities.[52] The general principles as put forth in these cases[53] are within this Court's purview of judicial notice.[54]

In the MI-SEE agreement, the parties to the contract adopted a contractual waiver regime including waivers, cross waivers and disclaimers of warranties. However, the parties did not intend to exculpate launching states. For waivers to be enforceable in the U.S., "the parties [must] express their intent in clear, plain, and unambiguous language. . . ."[55] The cross-waiver of liability clause in the MI-ISEE agreement is not expressly intended to "flow down" to launching states.[56] Article 15, which deals with waiver of claims, and Article 17, dealing with limitation of liability, nowhere mention or even make reference to any launching state.[57] The parties carefully drafted the waiver provisions and included "[a]ssociates, directors, officers, servants, agents, contractors, and subcontractors" in Article 15 and "[a]ssociates and contractors and subcontractors" in Article 17. If they wanted to cover launching states, they would have included them in this regime. This is even more obvious when one notes that the parties did specifically mention each of the four Respondent states by name in Article 16, dealing with third party liability. This preempts any argument that these states were supposed to be implicitly included in Article 15.

Parlivia can bring a breach of contract claim based on the assertion that ISEE did not use its "Best Efforts to launch [Parlivia's] spacecraft." Under Article 3.1 of the contract, such an action is not possible when the contract clearly and unambiguously bars such a claim.[58] The MI-ISEE contract is not clear and unambiguous on this point. Parlivia could bring its claim for failure of the second stage rocket to remove itself from *Environsat's* orbit rather than for launch failure;[59] Article 13.5 states that MI is entitled to a refund of the launch price as "the sole and exclusive remedy . . . for any Launch Failure." Under Article 1.8, "Launch Failure" means the failure of ISEE to accomplish the "Launch Mission,"[60] which in turn is defined in Article 1.9: "the launch of the Spacecraft for purposes of enabling [*Environsat*] to carry out its operational objectives." The extent of this last provision is unclear. The contract and its appendices obviously do not explicitly cover the stage after separation, but the launch extends that far. The stated purpose is to enable the satellite to carry out its operational objectives, but that does not help us much further since "for purposes of enabling" is a very broad term indeed. Article 13.5 is simply not sufficient to preclude all other claims since the relevant provisions in the contract are ambiguous.

Article 17.1 contains a disclaimer of warranty of merchantability and fitness for purpose, but does not indicate to what this disclaimer applies. Therefore, this provision is unlike the Martin Marietta disclaimer, where a similar clause was followed up by the following passage: "with respect to the [rocket] or associated equipment."[61] A strict rule on disclaimers of such warranties is that they have to be express and conspicuous.[62] In this case, the disclaimer was express and conspicuous as to what was intended to be disclaimed, but neither express nor conspicuous as to what the disclaimer applies to. Therefore, the disclaimer is ambiguous, and this Court should find it unenforceable.

Parlivia can also put forth a negligence claim under the contract. A plaintiff in this context can succeed on its negligence claim only if it can establish a duty in tort distinct from the contractual duties created between the parties.[63] ISEE owed MI a duty in tort, separate and distinct from the duties established by contract, to carry out this separation with due care, and to get the second stage removed from the satellite so as not to form a foreseeable danger to the satellite. Unlike in Martin Marietta and Appalachian Insurance, the satellite in this case was disabled by physical damage rather than being left in the wrong orbit. Based on the tort claim, MI can claim not only economic damages[64] but also the physical damage to the satellite.

In Appalachian Insurance and Martin Marietta, the court rejected a negligence claim because it found no duty of care in tort beyond the obligations specified in the contract. However, the appellate court in Martin Marietta held that even if there would be no negligence claim, a claim for gross negligence would be possible, reasoning that public policy invalidates cross waivers as they apply to gross negligence.[65] "Gross negligence" has been defined as a party's "willful, wanton, reckless, or gross conduct."[66] Therefore, Parlivia can claim its damages based on gross negligence.

Cross-waiver regimes such as the one in the contract have generally been justified on the basis that the private space industry still needs a large degree of protection in order to be able to develop from an "infant" industry into a "mature" industry.[67] As in other fields, "infant" private space industries need protection as long as financial burdens such as litigation and insurance threaten their existence.[68] However, the private space industry has developed in recent years such that it can reasonably be qualified as a "mature" industry: "the

pioneering period is clearly coming to an end, and space enterprise seems to flourish."[69] Therefore, the need to protect private space industries such as ISEE is not as great today as it was before. "[I]n the last decade and a half there has been a gradual but steady shifting of the allocation of the risk of loss in commercial space agreements away from the buyers to the manufacturer-sellers of commercial space products and the providers of launch services."[70]

It is appropriate for this Court to reconsider and even to abandon the special protection that has generally been awarded to private space industries, at least in cases involving gross negligence.[71] This Court should recognize that the "risk of loss allocation pendulum" is swinging from the buyer towards the seller and manufacturer of launch services.[72] Thus, this Court, in light of all the foregoing arguments, should allow the Applicant to recover damages for the lost satellite.

Under international principles of justice and equity, Parlivia is entitled to recover for the lost satellite notwithstanding the contractual cross waiver regime. Parlivia has been unjustly disadvantaged by Respondents. Its satellite is completely disabled through Respondents' faulty acts. Therefore, principles of international justice and equity dictate that Parlivia should not be barred by the cross waivers in its quest for relief.

III. Under the tort theory of recovery delineated in the Liability Convention, Parlivia may recover damages for loss of revenues and refund of the launch price.

The international community first reached formal agreement that states should be "internationally liable" for space accidents in the Outer Space Treaty.[73] This concept of international liability was expanded by the Liability Convention, which has been described as "a specialized international tort law on hazards in the space environment."[74] The Liability Convention creates two liability schemes for analyzing space torts. First, if a space object causes damage on earth or to aircraft in flight, absolute (strict) liability applies.[75] Second, if two space objects collide, fault-based liability applies:

> In the event of damage being caused elsewhere than on the surface of the earth to a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.[76]

Fault-based liability could encompass both negligence and intentional torts.

1. Loss of revenues

It is not possible at this time to replace the *Environsat*; therefore, this Court cannot order specific performance or restitution in kind. Substitutionary monetary compensation is the only realistic remedy to make the Applicant whole. In addition to the loss of the satellite, the Applicant must be compensated for lost revenues.

> This Court can substitute monetary compensation for specific restitution. [R]eparation must, as far as possible, wipe out all the consequences of the illegal act and reestablish the situation which would, in all probability, have existed if that act had not been committed. Restitution in kind, or, if that 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.[77]

The Liability Convention defines "damage" as "loss of life, personal injury or other impairment of health; or loss of or damage to property."[78] It is not clear from this language that prospective revenue losses or other consequential damages are included in this definition. The U.S. Senate identified this ambiguity with a linkage between consequential damages and a proximate causation requirement.[79]

When the Soviet satellite *Cosmos 954* crashed in Canada, the Canadian government, pursuant to the Liability Convention, claimed damages "undertaken as a consequence of the events giving rise to Canada's claim."[80] Although this case was settled through diplomatic channels, this would seem to establish a customary precedent of interpretation allowing consequential damages under the Convention's tort regime.

Compensation under the Liability Convention should be determined according to international law and general principles of justice and equity[81] rather than national law.[82]

> The Compensation which the launching State shall be liable to pay for damage under this Convention shall be 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.[83]

One general principle of justice is the Golden Rule.[84] The United States recognized as much when the space object SKYLAB was deorbiting, threatening to cause ground damage. The U.S. Department of State declared the U.S. would be bound by the Liability

Convention and "principles of simple justice when something you have done causes somebody else damage."[85] Damage compensation thus should make victims whole.

Although the Liability Convention places no limit on liability, equity requires some use of proximate cause[86] to prevent the assignment of infinite liability for every tortious act.[87] International law does not clearly distinguish between direct and indirect damage.[88] While not defined in the Convention, the phrase "international law and the principles of justice and equity" is not meaningless. In international contract law, for example, damages can include lost profits,[89] and reasonable lost profits within the contemplation of the contracting parties.[90]

The Liability Convention's vague language concerning justice and equity allows development in areas of the law "which have not yet crystallized into legal rules."[91] The "evolution of laws and practice applicable to the conduct of space activities and the expansion of this new field of space law"[92] is necessary if the law is to retain its vitality. "In law, we must beware of petrifying the rules of yesterday and thereby halting progress in the name of process. If one consolidates the past and calls it law, he may find himself outlawing the future."[93] The future is now. Application of the Liability Convention to a case where both space objects were launched together, though novel, is essential if the Convention is to remain relevant. This interpretation is consistent with the Convention's pro-victim orientation.[94] One of the purposes of the Liability Convention is to ensure "prompt payment under the terms of this Convention of a full and equitable measure of compensation to victims of such damage."[95] This full compensation provision seems to cover lost profits.[96] Also, according to Professor Christol, the direct damages provision encompasses lost profits.[97] International tribunals have awarded compensation for lost profits for international torts resulting in destruction of property.[98] Indemnification for lost profits is accepted as international law by "the most highly qualified publicists,"[99] and is thus within this Court's scope of judicial notice. "The indemnity should compensate for all damage which follows as a consequence of the unlawful act, including a profit which would have been possible in the ordinary course of events . . . It is not essential that the damage should have already taken place for compensation to be recoverable."[100]

Justice requires that the Applicant be made whole. If not for the negligence of ISEE, the Applicant would have realized US$20 million in revenue. Equity and justice are served when international law protects obligations *erga omnes* (owed to the international community as a whole). Protection of the outer space environment is one such obligation. The space debris problem is fast approaching a crisis.[101] International environmental law is founded on the principle that no state can use its territory to cause injury to another state's territory or property.[102] Judge Manfred Lachs recognized that "[s]pace debris, a byproduct of space activities, seriously endangers all space activities. Parts of space objects, such as payloads, uncontrollable fragments and boosters that continue to travel, may damage newly launched satellites."[103] Judge Lachs, who was one of the framers of the international space law regime,[104] thus foresaw the very fact pattern before this Court today, an uncontrollable booster fragment damaging a newly launched satellite. Although environmental space law is still immature, customary international law imposes obligations on states to protect the environment "beyond the limits of national jurisdiction."[105] This rule of customary law[106] imposes liability on the Respondents for environmental torts in space even beyond the parameters of the Liability Convention.

2. Refund of the launch price

Following the principles of international legal compensation outlined in Factory at Chorzow,[107] the Respondent states are liable for refunding the launch price. Specific restitution would require relaunching another satellite to replace *Environsat*. Any substitutionary monetary compensation must acknowledge this cost. These damages come under the general heading "reasonable costs for the repair of property that has been wrongfully harmed."[108] Replacing *Environsat* without paying for its relaunch would be inadequate. To make the Applicant whole again, an operational satellite must be reorbited. This will cost US$50 million as agreed in the refund clause of the contract.

IV. Under the Liability Convention, all four respondent states are jointly and severally liable. Damages should be equitably divided among the respondents -- proportional to the degree of fault as determined by the special master.

States are generally liable for the activities of their nationals.[109] This Court has held that customary international law imposes an obligation on each state "not to allow knowingly its territory to be used for acts contrary to the rights of other states."[110]

The Outer Space Treaty went further and imposed "international responsibility for national activities in outer space" even when conducted by non-governmental entities.[111] Space activities carried on by non-governmental entities "require authorization and continuing supervision" by the state.[112] The Outer Space Treaty assigns international liability to "[e]ach State Party to the Treaty that launches or procures the launching of an object into outer space . . . and each State Party from whose territory or facility an object is launched."[113] This concept was expanded in the Liability Convention, which imposes liability on the "launching State," defined as a state "which launches or procures the launching of a space object" or a state "from whose territory or facility a space object is launched."[114] Private entities, such as ISEE, can thus incur state liability under the Convention[115] for torts involving their space objects.[116]

Joint and Several Liability

Under the Liability Convention's fault-based liability regime for collisions between space objects, joint and several liability applies against joint participants, including states that allow tortious space launches from their territory.[117] The joint participants are treated as joint tortfeasors and are subject to "broad potential liability."[118] If one joint participant compensates the victim, it may seek indemnification from the other joint participants.[119] Because the Parlivian insurance underwriters' group SISA paid US$10 million, Parlivia can invoke Article V to seek indemnification from the Respondents.

Apportionment under the Liability Convention is to be predetermined by the parties.[120] Since that was not done here, the principles of equity, justice and international law espoused in Article XII should be employed. Article IV, although not applicable,[121] indicates the Convention drafters' conception that equitable apportionment be executed in accordance with degree of fault. The Special Master's report on fault should be considered in calculating the apportionment.[122] Other factors to weigh include: Who can best bear the loss?; Where lies the interest of the world community? The apportionment issue is not ultimately salient to the Applicant, who can employ joint and several liability to recover the full amount awarded from any or all of the Respondents.

Californium and Ukrastan

International Space Enterprises, Inc. ("ISE") is incorporated in the Republic of Californium. Under customary international law, Californium can be held responsible for ISE's torts. The Outer Space Treaty explicitly imposes international responsibility on a state for "national activities in outer space,"[123] even if such national activities are carried out by nongovernmental entities. Article VI imposes "ultimate liability for launches by non-governmental or intergovernmental organizations on the launching state or states."[124] Hence, the Outer Space Treaty applies to private companies[125] and "requires a certain minimum licensing and enforced adherence to government-imposed regulations."[126] Californium is a "launching state" under the Convention, because it is internationally responsible for the national activities of ISE, which, through its joint venture and agent ISEE, launched a space object. ISEE was a joint venture owned by ISE and NPO (scientific research and production association) Enerkru ("NPO"). Under the agency doctrine of *respondeat superior*, the master is vicariously liable for its servant's torts;[127] therefore, ISE and NPO are liable for ISEE's torts.

Even without imputing vicarious tort liability, the parent corporations are financially liable for the ostensibly insolvent joint venture. Any argument that ISE and Enerkru should be insulated from liability by their alter ego ISEE would be frivolous. Aside from the specific international legal obligations imposed by the Outer Space Treaty and the Liability Convention, equity, justice, and customary international law all mandate piercing the corporate veil in this context. "Although an independent juridical personality is conferred on a company, this personality does not present itself as an end, but simply as a means to achieve an economic purpose. . . ."[128] Although ISEE seems to have adopted a corporate or entity form ("Ltd.") to gain some degree of limited liability, joint ventures, which share profits, losses and control, generally are treated as partnerships, implying joint liability for debts and torts.[129] Even if ISEE is a limited liability entity under Pleasant Islands municipal law, piercing the corporate veil would be appropriate when "adherence to the fiction of separate existence would sanction fraud or promote injustice."[130] Piercing is even more likely when the victim is an involuntary tort creditor rather than a contract creditor.[131] In this case, ISEE made use of the resources and employees of ISE and NPO; this "failure to maintain arm's length relationships among related entities"[132] mandates piercing.

Similarly, in the transnational context, piercing the corporate veil is appropriate "to avoid fraud, injustice, or circumvention of an important regulatory policy."[133] Preserving the international legal regime embodied in the Liability Convention is surely an important regulatory policy. ISE, and consequently its alter ego ISEE, were under the jurisdiction and control of Californium.[134] Multinational enterprises are not stateless entities subject to no sovereign; such a situation would undermine large parts of international law. Californium is thus indirectly responsible for ISE's international space torts. This indirect state responsibility results from the "international legal obligation to protect foreign States and their nationals, as well as their property, within its jurisdiction, particularly territorial jurisdiction, from injurious acts committed by persons who are not servants or agents of the State acting in their official capacity, acting individually or in groups of any number, from mobs to revolutionaries."[135] Customary international law supports this interpretation.[136] Californium and Ukrastan cannot be allowed to hide behind Pleasant Islands' "flag of convenience." The principal investors in a space project must not be able to evade liability so easily. "States who are merely used for convenience should be disregarded by the world community."[137]

The Republic of Ukrastan and NPO have the same relationship as Californium and ISE; thus, the analysis is the same. Ukrastan is internationally responsible for NPO's space torts. Ukrastan is a "launching state" under the Convention.

Pleasant Islands

The launch provider ISEE is headquartered in the Commonwealth of the Pleasant Islands, thus exposing Pleasant Islands to international liability. The analysis is familiar. Pleasant Islands is internationally responsible for national activities in outer space carried on by ISEE, a nongovernmental entity. Apparently, Pleasant Islands did not exercise adequate due diligence in monitoring the activities of its corporate entities. It owes this duty to the international community *erga omnes*. ISEE launched a space object; therefore, Pleasant Islands is a "launching state" under the Liability Convention.

Patalia

The Kingdom of Patalia is liable as a "launching state" under the Liability Convention.[138] The *Progyia* launch vehicle carrying *Environsat* was launched from a commercial launch site at Cape Kou in Patalia. By allowing this launch from its territory, Patalia assumed potential liability under international law.

The contracting parties ISEE and MI clearly contemplated that the Respondent states would be liable under the Liability Convention. There is no other plausible explanation for insuring the Respondents. The MI-ISEE contract contains a Third Party Liability provision which explicitly names all four Respondent states.[139] Some nations, recognizing their international liability for private actions under the Outer Space Treaty and the Liability Convention, now require such third party liability insurance to insulate them from the Liability Convention's strict liability provisions for ground damage.[140] The Respondents probably required this Third Party Liability contract provision for similar reasons. This international liability was actually foreseen and, thus, foreseeable.

SUBMISSIONS TO THE COURT

For the foregoing reasons, the Government of Parlivia, Applicant, respectfully submits that this Court:

1. DECLARE that Parlivia may present a tort claim under the Liability Convention while the arbitration proceeding between MI, SISA and ISEE is in progress.

2. DECLARE that the contractual waiver regime of the MI-ISEE agreement does not preclude Parlivia's recovery of damages for the satellite loss.

3. DECLARE that Parlivia may recover damages for loss of revenues and refund of the launch price under the tort theory of recovery delineated in the Liability Convention.

4. DECLARE that all four Respondent states are jointly and severally liable under the Liability Convention and that damages should be equitably divided among the Respondents -- proportional to the degree of fault as determined by the special master.

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[1] "The fact that a contract has international importance because of its nature and magnitude does not result in an exception to the general principle that contracts are subject to domestic law. A private party does not obtain remedies on the international level against a State that has breached the contract. Nor do provisions in the contract for non-national law and arbitration change that principle." O. Schachter, International Law in Theory and Practice 311 (1991).

[2] See K. Widdows, What is an Agreement in International Law?, in The British Yearbook of International Law 117, 148 (1981).

[3] Article 7(1) of the Vienna Convention On the Law of Treaties, U.N. Doc. A/CONF. 39/27 (1969), 63 Am. J. Int'l. L. 875 (1969), 8 I.L.M. 679 (1969).

[4] South West Africa (Eth. v. S. Afr.; Liber. v. S. Afr.), 1962 I.C.J. 319, 330 (Dec. 21).

[5] See British Yearbook of International Law, supra note 2, at 117.

[6] Apparent authority to conclude agreements can bind a state when it is not evident to the other party that the official acting for the state has exceeded its authority. See Legal Status of Eastern Greenland (Den. v. Nor.), 1933 P.C.I.J. (Ser. A/B) No. 53, at 71 (April 5); Free Zones of Upper Savoy and the District of Gex (Fr. v. Switz.), 1932 P.C.I.J. (Ser. A/B) No. 46 (June 7).

[7] See Anglo-Iranian Oil Co. (U.K. v. Iran), 1952 I.C.J. 93, 112 (July 22).

[8] Respectively articles 1.7 and 1.9.

[9] The collision which completely disabled *Environsat* did not occur until more than four months after *Progyia* brought the satellite to its orbit and separated. This even further buttresses the indication that the launch mission was fulfilled.

[10] It is noteworthy that this argument was actually made by the **launch provider**, Martin Marietta, in AT&T v Martin Marietta but this case never went to litigation. See Ph.D. Bostwick, *AT&T v. Martin Marietta*: Further Reallocation of the Risk of Loss in Commercial Space Agreements, 23 J. Space L. 177, 178-181, 183 n.11 (1995).

[11] See article 3.1 of the contract.

[12] Article III of the Convention on International Liability for Damage caused by Space Objects (1972), Nov. 29, 1971/Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 762, 961 U.N.T.S. 187.

[13] Article I(d). "[A]ny object that reaches or is intended to reach outer space is a space object in the eyes of international space law." B. Cheng, International Responsibility and Liability for Launch Activities, 20 Air and Space Law. 297, 299 (1995).

[14] See generally S. Gorove, Space Stations - Issues of Liability, Responsibility and Damage, 27 Proc. Colloq. L. Outer Space 251 (1984).

[15] B.A. Hurwitz, State Liability for Outer Space Activities 25 (1992). The Liability Convention has often been referred to as a "victim-oriented" Convention. Staff of Senate Comm. on Aeronautical and Space Sciences, 92d Cong., 2d Sess., Report on Convention on International Liability for Damage Caused by Space Objects, Analysis and Background Data 20 (Comm. Print 1972) [hereinafter Staff Report].

[16] Convention on International Liability for Damage Caused by Space Objects, Letter of Submittal, John N. Irwin II, No. 65-118, at vii (1972).

[17] Hurwitz, supra note 15, at 52 (citations omitted).

[18] Article XI(2) (emphasis added).

[19] Anglo-Iranian Oil Co., 1952 I.C.J. at 112.

[20] "It often takes many months before an arbitral tribunal

is able to function." L.B. Sohn, Settlement of Disputes Arising Out of the Law of the Sea Convention, 12 San Diego L. Rev. 495, 503 (1975).

[21] K.-H. Böckstiegel, Arbitration and Adjudication Regarding Activities in Outer Space, 6 J. Space L. 3, 11 (1978).

[22] Id. See also H. DeSaussure, Maritime and Space Law, Comparisons and Contrasts (An Oceanic View of Space Transport), 9 J. Space L. 93, 103 (1981); G. Gál, Space Law 117-118 (1969).

[23] Convention on the Law of the Sea, U.N. Doc. A/CONF.62/122 (1982). See generally A.O. Adede, The System For Settlement of Disputes Under the United Nations Convention On the Law Of the Sea (1987).

[24] Convention on the Law of the Sea, article 280.

[25] Id., Article 286. See also L.B. Sohn, Peaceful Settlement of Disputes in Ocean Conflicts: Does UNCLOS III Point the Way?, 46 Law & Contemp. Probs., No. 2, 195, 196 (1983).

[26] L.B. Sohn, Audience Response, in The Law of the Sea - Where Now?, 46 Law & Contemp. Probs., No.2, 1, 209-210 (1983).

[27] The first draft of this draft convention is reproduced in K.-H. Böckstiegel, Proposed Draft Convention on the Settlement of Space Law Disputes, 12 J. Space L. 136, 140-162 (1985); H.L. Van Traa-Engelman, Commercial Utilization of Outer Space: Law and Practice 359-383 (1993).

[28] Böckstiegel, supra note 27, at 140; see also K.-H. Böckstiegel, Developing a System of Dispute Settlement Regarding Space Activities, 35 Proc. Colloq. L. Outer Space 27, 32 (1992).

[29] Ambatielos (Greece v. U.K.), 1953 I.C.J. 10, 23 (May 19); see also Interhandel (Switz. v. U.S.), 1959 I.C.J. 6, 29 (March 21); Certain Norwegian Loans (Fr. v. Nor.), 1957 I.C.J. 9, 24-25 (July 6).

[30] Article 23.1 of the contract. The question of what the parties intended to be covered by the arbitration clause "may turn on eye-crossing subtleties in the way the arbitration agreement was drafted." W.W. Park, International Forum Selection 107 n.460 (1995).

[31] O. Schachter, Disputes Involving the Use of Force, in The International Court of Justice at a Crossroads 223, 238 (L.F. Damrosch ed. 1987) [hereinafter Crossroads]. This Court's jurisprudence "makes it clear that [this] Court is inclined to take a broad view of what constitutes a justiciable dispute." D.E. Acevedo, Disputes Under Consideration by the U.N. Security Council or Regional Bodies, in Crossroads, supra, at 242, 263 (1987). See Military and Paramilitary Activities (Nicar. v. U.S.), 1984 I.C.J. 392, 419 (Nov. 26).

[32] Article 23.1 of the contract (emphasis added).

[33] See Th. Oehmke, International Arbitration 77 (1990).

[34] See Park, supra note 30, at 108 n.460.

[35] See W.W. Park, Arbitration of International Contract Disputes, 39 Bus. Law. 1783, 1785 (1984). See also Park, supra note 30, at 107-108.

[36] H.P. De Vries, International Commercial Arbitration: A Contractual Substitute for National Courts, 57 Tul. L. Rev. 42, 61 (1982). See also The Hon. Justice Kerr, International Arbitration v. Litigation, 1980 J. Bus. L. 164-65 (1980); F.J. Higgins et al., Pitfalls in International Commercial Arbitration, 35 Bus. Law. 1035, 1036 (1980).

[37] Schachter, supra note 31, at 237-38.

[38] Sohn, supra note 20, at 503-504.

[39] Id.

[40] As to the development of the non-arbitrability doctrine in the United States, see G.B. Born, International Commercial Arbitration in the United States 322-382 (1994).

[41] Id. at 323. Examples of such sovereigns are: France, Quebec, and Denmark. Id. at 323 n.319.

[42] This case had much more serious environmental consequences than Appalachian Insurance Co. v. McDonnell Douglas, 262 Cal. Rptr. 716 (Cal. Ct. App. 1989), and Martin Marietta Corp. v. INTELSAT, 991 F.2d 94 (4th Cir. 1992), because in those cases, no explosion took place.

[43] Space debris not only consists of fragments of exploded rocket stages or fragmented satellites, but also a wide variety of smaller items. See B.K. Schafer, Solid, Hazardous, and Radioactive Wastes in Outer Space: Present Controls and Suggested Changes, 19 Cal. W. Int'l L.J. 1, 4 (1989). Nothing in the record indicates that ISEE or any of the four Respondent states initiated any type of clean-up action.

[44] By far the most prolific sources of space debris are explosions and break-ups. COSPAR and the International Aeronautical Federation (IAF), Environmental Effects of Space Activities, Annex to Report, at 12, U.N. Doc. A/AC.105/420 (1988). Especially troublesome is the "cascade effect": because new debris is generated in any collision of two objects, the amount of debris constantly expands. Id. Most orbital debris can be found at roughly 900 km. See Schafer, supra note 43, at 3. The *Progyia* explosion occurred at 800 km., polluting this sensitive zone. Therefore, this explosion has a great potential for a cascade effect.

[45] The International Law Association ("ILA") recognized this and adopted the International Instrument on Space Debris. See Current Documents, 23 J. Space L. 112-116 (1995). See also M. Williams, The ILA Finalizes its International Instrument on Space Debris, 23 J. Space L. at 47. Also, the new Restatement specifically addresses environmental problems in the field of outer space. Restatement (Third) of Foreign Relations Law §601 n.6 (1987). See also G.H. Reynolds, International Space Law: Into the Twenty-First Century, 25 Vand. J. Trans'l L. 225, 227 (1992).

[46] Statute of the International Court of Justice, Article 38(1)(c). "International law has recruited, and continues to recruit many of its rules and institutions from private systems of law." 1 Sir G. Fitzmaurice, The Law and Procedure in the International Court of Justice 11 (1986) (quotation omitted).

[47] Sir Fitzmaurice, supra note 46, at 11. See also id. at 18-19.

[48] Appalachian Insurance, 262 Cal. Rptr. at 718-20.

[49] Martin Marietta, 991 F.2d at 95-97.

[50] Martin Marietta, 991 F.2d at 96; Appalachian Insurance, 262 Cal. Rptr. at 719.

[51] See supra note 10 and accompanying text.

[52] K.-H. Böckstiegel, Case Law on Space Activities, in Space Law: Development and Scope 205, 208 (N. Jasentuliyana ed. 1992).

[53] See generally R.V. Pino and F.A. Silane, Civil Liability in Commercial Space Ventures under United States Law, 6 Air and Space Law. 5 (1991).

[54] See supra notes 46-47 and accompanying text.

[55] Pino and Silane, supra note 53, at 6.

[56] Id. at 10-11.

[57] Compare the approach the court in Appalachian Insurance took with the "flow down" provisions in that case, 262 Cal. Rptr. at 721-23. See also P.L. Meredith and G.S. Robinson, Space Law: A Case Study for the Practitioner - Implementing a Telecommunications Satellite Business Concept 276-79 (1992).

[58] Martin Marietta, 991 F.2d at 97.

[59] Id.

[60] There is a drafting error in article 1.8: "the failure of the [] to accomplish the Launch Mission." The parties probably intended that the word "ISEE" be inserted there.

[61] Martin Marietta Corp. v. INTELSAT, 763 F. Supp. 1327, 1332 n.6 (D. Md. 1991). On this decision, see Meredith and Robinson, supra note 57, at 279-86.

[62] See Appalachian Insurance, 262 Cal. Rptr. at 720-725.

[63] Martin Marietta, 763 F. Supp. at 1331; 991 F.2d at 98. See generally Appalachian Insurance, 262 Cal.Rptr. at 737.

[64] See Martin Marietta, 991 F.2d at 98.

[65] Id. at 99-100.

[66] Martin Marietta, 991 F.2d at 100 (citations omitted).

[67] See Martin Marietta, 763 F. Supp. at 1333-34.

[68] Id.

[69] T.L. Masson-Zwaan, The Martin Marietta Case or How to Safeguard Private Commercial Space Activities, 35 Proc. Colloq. L. Outer Space 239, 244 (1992).

[70] Bostwick, supra note 10, at 181.

[71] Id.

[72] Id. at 182.

[73] Multilateral Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, 18 U.S.T. 2410; T.I.A.S. 6347 (1967).

[74] C. Christol, International Liability for Damage Caused by Space Objects, 74 Am. J. Int'l. L. 346, 369 (1980).

[75] "A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight." Article II.

[76] Article III.

[77] Factory at Chorzow (Ger. v. Pol.), 1928 P.C.I.J. (ser. A.) No. 17, at 47 (Sep. 13).

[78] Art. I(a).

[79] Staff Report, supra note 15, at 23.

[80] Canada: Claim Against the Union of Soviet Socialist Republics for Damage Caused by Soviet Cosmos 954, 18 I.L.M. 899, 900 (1979).

[81] Equity in this context should be distinguished from equity in the context of Article 38(2) of the Statute of the International Court of Justice allowing the Court to decide cases *ex aequo et bono* when the parties consent. This refers to a form of Solomonic "gut justice" -- not general principles of international law. See generally Th.M. Franck, Fairness in International Law and Institutions 54-56 (1995).

[82] In the course of negotiating the Liability Convention, the members of the Legal Subcommittee of the United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS) treated the compensation issue as a conflicts of laws problem. H. Reis, U.S. Discusses "Applicable Law" for Outer Space Claims, 62 Dep't State Bull. 18 (1970).

[83] Article XII.

[84] "And as ye would that men should do to you, do ye also to them likewise." Jesus Christ, Sermon on the Mount, Luke 6:31 (King James). See also Matthew 7:12 (King James). This principle is not limited to Western or Christian ethics. "All of the great religions prescribe obedience to the Golden Rule . . ." 6 Encyclopœdia Britannica 979 (1984); The Confucius Confusion, Economist 40 (Feb. 24, 1996). Universal acceptance could elevate the Golden Rule to the level of *ius cogens* (peremptory norms), "rules from which no derogation is permissible." Oppenheim's Int'l Law § 2 (1992).

[85] 1979 Digest of United States Practice in International Law 1191.

[86] Administrative Decision No. II, (U.S. v. Ger.), Mixed Claims Commission, 1923, [1923-25] Administrative Decisions and Opinions 5, 12-13, 7 U.N.Rep.Int'l Arb.Awards 23, 29-30.

[87] One must not forget, however, that even routine costs in the space industry are very high. The amount in controversy in the case at bar is rather modest. By comparison, in 1995 AT&T filed a US$400 million breach of contract suit against Martin Marietta after another satellite mishap. S. Medintz, AT&T v. Martin Marietta, 1995 Am. Law. 102 (June 1995). Also, it has been estimated that a hypothetical launch mishap at Cape Canaveral, Florida could cause damages in excess of

US$5 billion in 1989 dollars. G.H. Reynolds and R.P. Merges, Outer Space: Problems of Law and Policy 176 (1989).

[88] Reynolds and Merges, supra note 87, at 176.

[89] UNIDROIT Principles Art. 7.4.2(1).

[90] Shufeldt Claim (U.S. v. Guat.), Dep't of State Arb.Ser. No. 3, 851, 877-78, 2 U.N. Rep. Int'l Arb. Awards 1079, 1099 (1930); 3 Whiteman, Digest of International Law 1858-66 (1967).

[91] Maritime Delimitation in the Area Between Greenland and Jan Mayen (Den. v. Nor.), 1993 I.C.J. 38, 234 (June 14).

[92] P. Nesgos and R. Craft, The Emerging Commerce in Space: New National Policy Sets the Tone, 1988 Nat'l L.J. 22 (1988).

[93] Manfred Lachs, President of the International Court of Justice, speech given at the United Nations General Assembly in 1973.

[94] N.C. Goldman, American Space Law: International and Domestic 80 (2d ed. 1996).

[95] Preamble to the Liability Convention.

[96] 8 M. Whiteman, supra note 90, at 887.

[97] Christol, supra note 74, at 359.

[98] Irene Roberts Case (United States v. Venezuela), Ralston, Venezuelan Arbitrations of 1903, 142, 144, 9 U.N.Rep.Int'l Arb.Awards 204, 207-208; 3 Whiteman, supra note 90, at 1840-58 (If the profits are too speculative, the tribunal can award interest instead of lost profits.)

[99] Statute of the International Court of Justice, Article 38(1)(d).

[100] J. De Arechaga, International Law in the Past Third of a Century, 159 R.C.A.D.I. 285-87 (1978-I).

[101] See generally L. Roberts, Addressing the Problem of Orbital Space Debris: Combining International Regulatory and Liability Regimes, 15 B.C. Int'l & Comp. L. Rev. 51, 53-57 (1992).

[102] Trail Smelter Arbitration (U.S. v. Can.), Trail Smelter Arbitral Tribunal, 3 R. Int'l Arbitral Awards 1905 (1941).

[103] M. Lachs, Views from the Bench: Thoughts on Science, Technology and World Law, 86 Am. J. Int'l. L. 673, 695 (1992).

[104] N. Jasentuliyana, The Lawmaking Process in the United Nations, in Space Law: Development and Scope 35 (N. Jasentuliyana ed. 1992).

[105] Restatement (Third) of Foreign Relations Law § 601.

[106] See, e.g., Stockholm Declaration on the Human Environment, 11 I.L.M. 6, 1416 (1976); International Law Association, Report of the 61st Conference 391 (Paris 1984); see generally V.S. Vereshchetin and G.M. Danilenko, Custom as a Source of International Law of Outer Space, 13 J. Space L. 22, 24-31 (1985).

[107] See supra note 77.

[108] Christol, supra note 74, at 359.

[109] "International law imposes a duty upon every state to exercise due diligence to prevent its own subjects, and such foreign subjects as live within its territory, from committing injurious acts against other states." Oppenheim's Int'l Law § 166, at 549 (1992).

[110] Corfu Channel (U.K. and N. Ir. v. Alb.), 1949 I.C.J. 4, 22 (April 9).

[111] Outer Space Treaty, Article VI.

[112] Id.

[113] Id., Article VII.

[114] Liability Convention, Article I.

[115] "The fact that private individuals or entities launched the space object is irrelevant." S. Murphy, Prospective Liability Regimes for the Transboundary Movement of Hazardous Wastes, 88 Am. J. Int'l. L. 24, 59 (1994).

[116] Article I defines space objects to include launch vehicles and booster rockets, so the booster fragment from the *Progyia* launch vehicle comes within the definition of "space object." B. Reijnen, Pollution of Outer Space and International Law, 32 Proc. Colloq. L. Outer Space 130, 135 (1990).

[117] Article V.

[118] Memorandum of Agreement on Satellite Technology Safeguards between the United States of America and the People's Republic of China, 1989 WL 428790; State Dept. No. 89-115, KAV No. 312 (Treaty Signed at Washington, December 17, 1988)

[119] Article V.

[120] Id.

[121] Article IV concerns an orbital collision causing ground damage to a third party and apportionment of liability between the nations responsible for the two space objects.

[122] On the face of things, it appears that NPO Enerkru was the primary bad actor; NPO's computer programmer made the crucial mistake. However, this assessment was made by an internal Safety Review Board which may be protecting ISE. The Special Master's report must be held determinative.

[123] Outer Space Treaty, Article VI.

[124] Reynolds and Merges, supra note 87, at 175.

[125] G. Zhukov and Y. Kolosov, International Space Law 65 (1984).

[126] Dembling and Arons, The Evolution of the Outer Space Treaty, 33 J. Air L. & Com. 419 (1967).

[127] Restatement (Second) of Agency §219 (1958).

[128] Barcelona Traction, Light & Power Co., Ltd. (Belg. v. Spain), 1970 I.C.J. 3, 131- 32 (Feb. 5).

[129] H. Gelb, Personal Corporate Liability: A Guide for Planners, Litigators, and Creditors' Counsel 300-07 (1991).

[130] Id. at 5.

[131] Id. at 13.

[132] Id. at 9.

[133] D. Aronofsky, Piercing the Transnational Corporate

Veil: Trends, Developments, and the Need for Widespread Adoption of Enterprise Analysis, 10 N.C.J. Int'l. L. & Com. Reg. 31, 86 (1985).

[134] The principle of state responsibility derivative of jurisdiction and control is well- established in international law. For example, in the context of deep sea-bed mining, the United States recognizes jurisdiction over and requires licensing for corporations which are controlled by U.S. nationals (either natural or corporate). J. Fawcett, Outer Space: New Challenges to Law and Policy 41 (1984).

[135] Cheng, supra note 13, at 300.

[136] For example, when the private West German company, Orbital Transport und Raketen Aktiengesellschaft (OTRAG), announced plans to launch space objects from Zaire and Libya, several governments protested and warned "that Germany would be liable for any damage caused by such activities." Böckstiegel, supra note 52, at 207.

[137] W. Wirin, Practical Implications of Launching State - Appropriate State Definitions, 37 Proc. Colloq. L. Outer Space (1994).

[138] "A State from whose territory or facility a space object is launched." Article I.

[139] Article 16.1 of the contract.

[140] See, e.g., Commercial Space Launch Act of 1984, 49 U.S.C. §§ 2601-2623 (1990) for an example from the United States of America.