23rd MANFRED LACHS SPACE LAW MOOT COURT COMPETITION

The 2014 Manfred Lachs Space Law Moot Court Competition

Case Concerning Satellite Electromagnetic Interference

Akera v Mheni

Part A: Introduction

The 23rd World Final of the Manfred Lachs Space Law Moot Court Competition took place in Toronto, Canada, on Thursday, 2 October, 2014, at the Ontario Provincial Court, Old City Hall. This event took place in the framework of the 57th IISL Colloquium on Space Law in conjunction with the 66th International Astronautical Congress.

The name of the Moot Court Problem of 2014 was *Case Concerning Satellite Electromagnetic Interference (Akera v Mheni)*. The author of the Problem was Prof. Dr. Mahulena Hoffman (Czech Republic), with the assistance of James D. Rendleman, Esq. (USA). There were national funding rounds in India (10 teams) and China (14 teams). Sixty one teams from around the world registered for the Manfred Lachs Competition and submitted memorials. More than 150 persons judged memorials and/or oral pleadings and many more were involved in logistics and sponsoring.

On 30 September 2014, the four teams representing North America, Europe, Asia Pacific and Africa competed in two Semi-Finals for the selection of the Finalists. The World Final was judged by Judges Leonid Skotnikov, Xue Hanqin and Joan Donoghue, from the International Court of Justice.

The IISL's Moot Court Committee expresses its gratitude to the following persons that helped with the local organization of this event and the IISL Dinner:

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The following organizations kindly sponsored the World Finals' teams:
- North American Finalist sponsor: Secure World Foundation (SWF)
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- European Finalist sponsor: European Centre for Space Law, ECSL/ESA
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The following organizations kindly sponsored the IISL Annual Awards Dinner and the Moot Court Competition:
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The IISL is most grateful to all these generous sponsors and also to IAC's Local Organizer Committee.

World Finals

Winner of World Finals / Lee Love Award:
National Law University (Delhi), Delhi, India
Students: Mr. Arshu John, Mr. Somil Kumar, and Mr. Linesh Lalwani
Faculty Advisor: Mr. Ruhi Paul

Runner up:
Florida State University College of Law, Tallahassee, Florida USA
Students: Ms. Jessica Fernandez and Mr. James Burleson
Faculty Advisor: Mr. Nat Stern
Faculty Advisor Assistant: Mr. Arthur Stern III

Semi-finalists:
Université Paris Sud, Paris, France
Students: Ms. Caroline Thro, Ms. Katianne Crouch and Mr. Philippe Olive
Faculty Advisor: Prof. Vincent Correia

and

Obafemi Awolowo University, City of Ile-Ife, Nigeria
Students: Ms. Ayoola Similoluwa Adenike, Ms. Adeyemi Temitope Omolara and Mr. Ibikunle Isaac Motunrayo
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Best oralist / Sterns and Tennen Award:
Mr. Linesh Lalwani, National Law University (Delhi), Delhi, India

Judges for Finals
H.E. Leonid Skotnikov, International Court of Justice
H.E. Judge Xue Hanqin, International Court of Justice
H.E. Joan Donoghue, International Court of Justice

Judges for Semi-Finals (Oral Pleadings):
Prof. Joanne Gabrynowicz (USA)
Prof. Dr. Stephan Hobe (Germany)
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Adv. Phetole Patrick Sekhula (South Africa)
Mr. K.R. Sridhara Murthi (India)

Judges for Semi-Finals (Memorials):
Prof. Setsuko Aoki (Japan)
Prof. Dr. Elisabeth Back Impallomeni (Italy)
Maury J. Mechanick, Esq. (USA)
Prof. Vernon Nase (Australia)
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Participants in the regional rounds

Africa:
1. Babcock University, Ilishan-Remo, Nigeria
2. Bayero University Kano, Kano, Nigeria
3. Obafemi Awolowo University, City of Ile-Ife, Nigeria
4. University of Cape Town, Cape Town, South Africa

5. University of Pretoria, Pretoria, South Africa
6. University of Zululand, KwaDlangezwa, South Africa

Asia Pacific:

1. Beijing Institute of Technology (BIT), Beijing, China
2. Beijing Foreign Language Study University (BFSU), Beijing, China
3. City University of Hong Kong, Hong Kong, China
4. China University of Political Science and Law (CUPL), Beijing, China
5. Civil Aviation University of China, Tianjin, China
6. Curtin University, Perth, Australia
7. Gujarat National Law University, Gandhinagar, India
8. Institute of Law, Nirma University, Ahmedabad, India
9. Murdoch University, Murdoch, Australia
10. NALSAR University of Law, Hyderabad, India
11. National Law Institute University, Bhopal, India
12. National Law School of India University (NLSIU), Bangalore, India
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1. Faculty of Law, University of Cologne, Cologne, Germany
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1. Cornell Law School, Ithaca, New York, USA
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Regional organizers of the 2014 competition:
Africa: Adv. Lulu Makapela (South Africa)
Asia Pacific: Prof. GUO Hongyan (China) and Mr. V. Gopalakrishnan (India)
Europe: ECSL
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Dedicated internet sites to the competition:
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Part B: The Problem

Statement of Facts

1. The Akeran Federation (Akera) and the Commonwealth of Mheni (Mheni) are neighboring states with a long history of competition, diverging political systems, alliances and disputes. Mheni is a large mountainous State on the coast of the Botuos Sea. Akera is comprised of a federation of nearly 500 islands, some large, some small, extending 950 kilometers north-south closely along the length of Mheni. Both nations allocate a significant part of their budgets to civil and military space programmes.
2. In the late 20th century, huge reserves of natural gas and crude oil were discovered under Akera's island chain, and it became a major petroleum exporter in the global marketplace. Historically, inter-island trade and travel was difficult because the waters throughout Akera are threatened by many dangerous reefs and other natural hazards. Akera's economy prospered from the petroleum trade, and it was able to exploit these resources to eliminate the navigation threats, enhance its own national and economic security, and enable sea-borne trade by supertankers and container ships to its islands. Akera achieved this success in part by developing and flying its own precision navigation and timing (PNT) satellite system, known as SEANAV.
3. The SEANAV constellation is a set of 18 payloads hosted onboard a variety of commercial satellites that have been launched by sea-based commercial space launch providers into inclined, near-circular, medium Earth orbits. The SEANAV hosted payloads have been fully operational since 2010. The SEANAV PNT capabilities have been employed by the Akeran military as well as the international private sector. Private sector users purchase SEANAV User (SEA-U) receivers from Akera in order to access the signal. Unbeknownst to Akera, the SEANAV PNT signal also was used by the Mhenian military with unauthorized Mhenian produced SEANAV User Equipment (M-SUE) tuners.
4. The claimed economic zones of Akera and Mheni overlap in places in the Botuos Sea, including the area of the Langerhans Islands. The Langerhans Archipelago is a small cluster of uninhabited islands and contains an abandoned airstrip that was used during the Second World War. No State or entity expressed concerns about the area until geologists determined substantial oil and gas reserves exist under its waters. When that occurred, considerable interest was expressed by established Akeran petro-companies, as well as by smaller and start-up companies in both Akera and Mheni.

5. Sain Communications is a Mhenian corporation founded, owned and controlled by former Mhenian space and defense contractor employees, including hardware and software engineers. Sain Communications conducts a variety of business operations, including consulting services for the Mhenian oil and gas industry. According to a filing with the Mhenian securities regulators, Sain Communications had a contract with one petroleum start-up company, Peabody Enterprises. Sain Communications' compensation was to be comprised, in majority part, of stock and stock options which were potentially lucrative in the event Peabody Enterprises successfully exploits the oil and gas reserves of the Langerhans Archipelago.
6. In mid-2014, in an attempt to assert its interests in the Langerhans Archipelago region, small Akeran warships sailed out of harbors in northern Akera into the Langerhans Archipelago's waters. Akera's air force also flew several transports onto the abandoned airstrip. While there, the pilots exited their aircraft, saluted, planted an Akeran flag next to their aircraft, shook hands, climbed back into their planes, and departed. Photographs of these events were widely publicized and celebrated by the Akeran media.
7. In early 2015, Sain Communications received authorization from the Mhenian government pursuant to its Space Licensing Act to begin development of the X-12 satellite system. The license application listed the purpose of the X-12 satellites as the "testing of new communication technologies." Sain Communications proceeded to complete and deploy the X-12 system in early 2016. The X-12A and X-12B satellites were launched at 6 month intervals from a floating platform in waters of the Langerhans Archipelago by an international commercial launch services consortium which included entities incorporated in Akera. The X-12 satellites were placed in highly elliptical orbits, with their apogees located above the territories of Akera and Mheni. The X-12A and X-12B were phased within the same orbital plane to present 24-hour continuous coverage of the region. Mheni registered the X-12 satellites with the United Nations, and listed the purpose of each satellite to be the "testing of new communication technologies."
8. In mid-2016, Akera noted that its SEA-U receivers began to suffer from intermittent electromagnetic interference (EMI) and, as a result, the systems began to have difficulty accessing the SEANAV PNT signal. The EMI coincided with the overflights of the X-12A satellite over Akera, and only affected SEA-U receivers which were within the communications footprint of the X-12A. As the two X-12 satellites became fully functional, other communications and digital systems tied to the SEANAV PNT system in Akera suffered deterioration. Numerous sensitive electronic and electrical devices also were disrupted, including those used for military purposes and civil aviation. The prestigious investigative journal *Aviation Daily & Space Operations* reported that as a result of the interference of the SEANAV

signal, an Akeran unmanned aerial vehicle (UAV) equipped with a SEA-U receiver had crashed at a military base, destroying the vehicle, as well as a building at the base, and killed two military personnel on the ground. In a press conference, the President of Akera confirmed that an Akeran UAV had crashed. She announced that Akeran analysts had confirmed the loss was caused by EMI generated by the X-12A and that the EMI had disabled the UAV's onboard navigation capabilities. According to the Akeran President, the analysts concluded that the interference phenomena had never occurred prior to placing the X-12 system on-orbit. She described the X-12A satellite as a "sophisticated weapon" and complained that it was being used against Akera, endangering its territorial integrity and national security.

9. By early-2017, the X-12A EMI had increased to prevent the use of SEA-U receivers throughout Akera's islands and near the Langerhans Archipelago. This had the effect of causing a substantial reduction in international shipping and transit through Akera's waters, because large supertankers and container cargo ships could not navigate safely through its reefs and hazards. As a result, Akeran oil exports and trade declined significantly. During this time, however, several companies from Mheni, including Peabody Enterprises, began oil drilling operations in the Langerhans Archipelago.
10. The Akeran Foreign Ministry issued a demarche to the Mhenian authorities demanding that Mheni take immediate action to prevent the transmission of signals from X-12 satellites that were causing or could cause harm to Akera's use of the SEANAV system.
11. In a news conference, Mheni's foreign minister, Preston Yukon, responded to the Akeran demarche. He said that Mheni was not at fault for the deterioration of Akera's communications. Yukon stated that there was no proof of a direct connection between the malfunctioning of the Akeran systems and devices and the transmissions of the X-12 satellites, and Mheni refused to take responsibility for the interference. He stated that Sain Communications was in possession of valid authorizations to perform its space experiments and testing in accordance with both Mheni's laws and international obligations. He added that, during the authorization process, nothing indicated that X-12A was designed to disrupt any other satellite's signal. He disclosed that Mheni was using M-SUE tuners, and explained that it would not be in Mhenian interests to interfere with the SEANAV system since its military and national space systems also used the signal for PNT purposes. As further proof on this point, Yukon stated that he was told the X-12 satellites also used the SEANAV PNT signal for navigation purposes. He stated that Akera's authorities should search for the source of disruption in their own territory.
12. Akera sought redress for its complaints about the X12 satellite's transmissions through the International Telecommunication Union (ITU),

and requested that Mheni accede to the Optional Protocol on Compulsory Settlement of Disputes. Mheni rejected the request. Thereafter, Akera invoked the ITU dispute resolution consultations. Mheni denied any responsibility for the EMI, and the ITU procedures were unsuccessful in resolving the matter.

13. Akera also raised concerns about the X-12 satellite before the United Nations (UN) Committee on the Peaceful Uses of Outer Space (COPUOS), as part of its Legal Subcommittee (LSC) and Scientific and Technical Subcommittee (STSC) general exchanges of views. Other members of the LSC and STSC declined to offer comments responsive to the topic, though some did advise that they wanted to consult with home governments before expressing any specific view. Akera also sent an official letter to the UN Secretary-General informing him about the situation, and formally requested the UN Security Council to undertake measures with a view to prohibiting the attacks against its communication networks and navigation systems. One permanent Member State of the Security Council, a long-standing ally of Mheni, issued a statement that it would veto any resolution against Mheni. Subsequently, the UN Security Council matter was tabled without a vote.
14. During this period of time, Akera developed a second generation of SEANAV PNT satellites, which were designed to transmit a more powerful and protected signal, resistant to the X-12A's EMI, and to counteract and neutralize the effects of the EMI. No longer flown as hosted payloads, the SEANAV-2 system was inaugurated with the launch of three satellites in the constellation in orbits close to the original SEANAV hosted payloads. The launch of these three satellites, Klondike, Hudson and Simcoe, was accompanied by an announcement by Akera's President that the SEANAV systems would be used in support of expanded use of its drone program, and to patrol waters in and around Akera and the Langerhans Archipelago. She also stated that the SEANAV-2 signal would not be as vulnerable to EMI as was the original SEANAV system, but the full deployment of SEANAV-2 would take several years to complete. She reiterated that the X-12 EMI was provocative, illegal, and a threat to Akeran national security interests, and demanded that Mheni take immediate action to end the EMI.
15. Mheni responded to the Akeran demand by stating that Mheni was not responsible for the EMI and that there was no proof that the X-12A caused any interference.
16. While the Klondike satellite orbited in near conjunction with the X-12A, the Klondike broadcast a new SEANAV navigation signal with information encoded and integrated within its waveform to counteract the EMI. The X-12A was equipped with an on-board M-SUE tuner, which malfunctioned when processing the Klondike's new PNT signal. This malfunction rendered the X-12A uncontrollable and it began to

spin. Automatic systems on-board the X-12A ignited its thrusters in an attempt to correct its orientation, but the impaired M-SUE tuner sent inaccurate navigation information to the control system, and the automated thruster firings had the effect of changing the X-12's orbit and to lower its perigee to 100 km. Ground controllers were unable to stabilize the X-12A or boost its orbit, and within two weeks the satellite re-entered the Earth's atmosphere and was destroyed. With the destruction of the X-12A the EMI affecting SEA-U receivers use of the SEANAV PNT signals ceased.

17. In an attempt to reduce the potential for hostilities among the parties, and resolve their disputes, Akera and Mheni have decided to submit these issues for resolution to the International Court of Justice.
18. Akera and Mheni both are members of the United Nations and parties to the Outer Space Treaty, Rescue and Return Agreement, Liability Convention, Registration Convention, Moon Agreement, and the Constitution and Convention of the International Telecommunication Union and its Radio Regulations. Akera is a signatory to the ITU Optional Protocol on Compulsory Settlement of Disputes. The parties agree that there is no issue concerning the jurisdiction of the Court. Each party also stipulates that the ITU dispute resolution procedures have been exhausted.
19. Akera requests the Court to adjudge and declare that:

    a. Mheni is liable under international law for the harmful EMI preventing access to the SEANAV satellite PNT signals.
    b. Akera acted in conformity with international law by disabling the X-12A satellite.
    c. Mheni is liable to Akera for the loss of the unmanned aerial vehicle, the damage to the military facility, and the deaths of the two Akeran military personnel.

20. Mheni requests the Court to adjudge and declare that:

    a. Mheni is not liable under international law for any EMI preventing access to the SEANAV signals.
    b. Akera violated international law by disabling the X-12A satellite resulting in its destruction.
    c. Mheni is not liable to Akera for the loss of the unmanned aerial vehicle, the damage to the military facility, and the deaths of the two Akeran military personnel.

Problem Clarifications

1. Are the analysts referred to in paragraph 8 qualified with proper credentials to enable them to give a reliable report?
Response: The analysts have Akeran credentials
2. Is the base that was damaged by the crash of the UAV an Akeran base or does it belong to another country?
Response: The base was Akeran
3. What is the purpose and reach of Mheni's Space Licensing Act?
Response: The Mheni Space Licensing Act regulates space activities conducted from territories under Mheni jurisdiction or by Mhenian nationals
4. What, if any, EMI shielding/electromagnetic compatibility techniques did Akera employ in the SEA-U receivers and aboard the crashed UAV?
Response: Further clarification is declined
5. What was the date of finding oil and gas in the Langerhans Archipelago?
Response: Prior to 2017
6. What was the date of the Akeran Foreign Ministry issuing the demarche to Mheni?
Response: Early 2017
7. Whether SEANAV-2 works with or independent from SEANAV-1?
Response: Further clarification is declined
8. What happened to the X-12 B satellite after the destruction of the X-12 A?
Response: Further clarification is declined
9. Which satellite system's frequencies, SEANAV's or X-12's (if any), were first appropriately registered in accordance with ITU procedures?
Response: All satellite system's frequencies were properly registered in accordance with the ITU procedures.
10. Aside from their orbital positions, what were the functional differences between the X-12A and the X-12B?
Response: The nominal functions were identical
11. Are Mheni and Akera parties to the WIPO Copyright Treaty?
Response: Further clarification is declined
12. Does the term 'liable' as used in Claim A refer to liability for damages in terms of the Liability Convention or does it rather refer to responsibility according to Art. VI OST?
Response: Further clarification is declined
13. Was Mheni aware of Akera's attempt to assert its interest in the Langerhans Archipelago region (para.6)?
Response: Further clarification is declined
14. Whether Peabody Enterprises is owned and/or controlled by Mheni?
Response: Further clarification is declined
15. What is the exact distance between Akera & Langerhans Archipelago and Mheni & Langerhans Archipelago?
Response: Further clarification is declined

16. It is stated in paragraph 8 of the Problem that "an Akeran unmanned aerial vehicle (UAV) equipped with a SEA-U receiver had crashed...". Is the UAV in question used for military purposes or civil aviation?
Response: Further clarification is declined
17. It is stated in paragraph 9 of the Problem that "By 2017 the X-12 A EMI had increased to prevent…" It is contradictory to Mheni's subsequent stance that it was not responsible for the harmful EMI (e.g. paragraphs 12 and 15). Is there a change of stance?
Response: Further clarification is declined
18. Para 16 of the Compromis states that X 12A de-orbited and lowered its perigee to 100 kms and within two weeks the satellite re-entered the Earth's surface and was destroyed.
Clarification 1: Was this destruction done manually by Mheni?
Response: No
19. Issue II of the case states that Akera acted in conformity with international law by disabling X-12A satellite.
Clarification 2: Does that mean Akera concedes to their involvement in the disablement of the same?
Response: Further clarification is declined
20. Were both the original SEANAV system & the new SEANAV-2 system (comprising of Klondike, Hudson and Simcoe), and the X-12 system registered with the UN?
Response: Yes
21. Did the Mhenian military and national space systems (including the X-12 satellites) encounter the same disruptions which Akera experienced as a result of the alleged electromagnetic interference with the SEANAV system?
Response: Further clarification is declined
22. According to paragraph 3, "the SEANAV PNT capabilities have been employed by the Akeran military as well as the international private sector". Does the SEANAV provide open service free of charge similar to that of the GPS, or it provides authorized paid service only to certain subscribed users?
Response: Further clarification is declined
23. Could you please clarify the meaning of "an international commercial launch services consortium which included entities incorporated in Akera" in paragraph 7? Does it mean that the consortium has the independent legal personality and with the nationality of Akera?
Response: Further clarification is declined
24. Was the purpose of SEANAV 2 just to counter act or disable X-12A?
Response: Further clarification is declined.
25. Were the M-SUE tuners and Akeran receivers significantly different in design?
Response: Further clarification is declined

26. The floating platform used for the launch of X-12A and X-12B was located in the territorial waters of Langerhans Island. Was this also in the overlapping economic zones of both Akera and Mheni?
Response: Further clarification is declined
27. Did Akera take any action to locate the source of disruption in their territory?
Response: Akera took action to ascertain the source of the intermittent EMI
28. (Para 7, line 8): Whether the term 'entities' used here, refer to both, public & private Akeran entities or one of them. If only one of them, then which?
Response: Further clarification is declined
29. Does the investigative journal *Aviation Daily & Space Operations* belong to Akera?
Response: The journal is not a government publication
30. Is the liability claimed by Akera against Mheni (contention 3) made by the State of Akera itself or by Akera on behalf of any of its nationals (including relatives of the deceased) and whether the question of damages / compensation needs to be argued under this contention?
Response: Further clarification is declined
31. Where have the SEA-U receivers been placed? (meaning the exact area type of their position).
Response: Further clarification is declined
32. Is there an official agreement between Akera and Mheni that regulates the use of each other's satellites?
Response: No
33. Is there any act, that can be used to solve the problem, that hasn't come into force?
Response: Further clarification is declined.

Part C: Finalists Memorials

Memorial for the Applicant, the Akeran Federation

National Law University (Delhi), Delhi, India
Students: Mr. Arshu John, Mr. Somil Kumar, and Mr. Linesh Lalwani
Faculty Advisor: Mr. Ruhi Paul

Argument

I. Mheni is liable under International law for harmful EMI preventing access to SEANAV satellite PNT signals

Outer space is free for use and exploration to all States.[1] Peripheral data gathering from outer space is permissible and any interference with this right

[1] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *entered into force* Oct.

constitutes a violation of International law.[2] A State is responsible for internationally wrongful acts that are attributable to it.[3] Accordingly, Mheni should be held responsible for interference caused by the X-12 Satellite system.

A. The causing of harmful EMI can be attributed to the X-12 satellite system

i. *Circumstantial evidence proves that the EMI was caused by the X-12 satellite system*

a. Akera has recourse to utilize circumstantial evidence

The ICJ has generally taken a flexible approach to the admissibility of evidence.[4] This can be evidenced from the use of circumstantial evidence in the *Corfu Channel* case wherein this court has allowed parties to take "more liberal recourse to inferences of fact and circumstantial evidence." [5] The pre-condition for allowing such liberal recourse to the fact is that [1] the direct evidence is under the exclusive control of the opposite party and [2] the circumstantial evidence does not contradict direct evidence and accepted facts.[6] Akera does not have access to direct evidence as the X-12 satellites are under exclusive control of Sain Communications which is a wholly owned Mhenian corporation founded, owned and controlled by Mhenian nationals.[7] Thus, it should be allowed to utilise circumstantial evidence.

b. The uncontested circumstances reveal the causal link between the harmful EMI and the deployment of the X-12 Satellites

The ICJ has placed reliance on evidence that has not been challenged by impartial persons for correctness of facts.[8] The X-12 satellites had their

10, 1967, art. 6, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter OST]; Manfred Lachs, *The International Law of Outer Space,* in RECUEIL DES COURS, 47-51 (1964).

2 BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW, 578 (1997).

3 Int'l Law Commission, *Articles on State Responsibility*, U.N.GAOR, 56th Sess, Supp No 10, art 1, U.N. Doc. A/56/10 (2001) [hereinafter Articles on State Responsibility]; Chorzow Factory (F.R.G. v. Pol.), 1927 P.C.I.J. (ser. A) No. 9, at 21 (July 26) [hereinafter Chorzow Factory]; Rainbow Warrior (New Zealand/France), (1990) 82 Int'l. L. Rep., 499 (Apr. 30); Gabcikovo-Nagymaros Project (Hungary v. Slovakia), 1997 I.C.J. 7 (Sep. 25).

4 MICHAEL P. SHARF & MARGAUX DAY, RECONCILABLE DIFFERENCE: A CRITICAL ASSESSMENT OF THE INTERNATIONAL COURT OF JUSTICE'S TREATMENT OF CIRCUMSTANTIAL EVIDENCE, 2 (2010), http://works.bepress.com/michael_scharf/2.

5 Corfu Channel (U.K. v. Alb.) (Merits), 1949 I.C.J. 4, 18 (Apr. 9) [hereinafter Corfu Channel].

6 *Id.*

7 *Compromis*, ¶ 5.

8 Armed Activities on the Territory of the Congo (Dem. Rep. Congo v. Uganda) (Merits), 2005 I.C.J. 156 ¶¶ 4-15 (Dec. 19) [hereinafter DRC v. Uganda], ¶ 156; Case Concerning Application of the Convention on Prevention and Punishment of Crime of Genocide (Bosn. & Herz. v. Serb. & Montenegro), 2007 I.C.J., (Feb. 26).

apogees located over Akera and Mheni.[9] The EMI coincided with the overflights of X-12A satellite over Akera[10] and only affected SEA-U receivers that were within communications footprint of Akera.[11] Further, once the X-12 satellite system became fully functional, other communications and digital systems which were tied to the PNT system in Akera suffered deterioration.[12] Further, the EMI affecting the use of SEANAV PNT signals ceased after the destruction of X-12A.[13] Hence, the circumstances prove that the X-12 satellite system was the cause of the harmful EMI.

c. Sain Communications had motive to interfere with the SEANAV satellite system

The ICJ has held that improper purpose or motive is proved by circumstantial evidence.[14] One may deduce that an act was motivated by an improper motive if the act is so unreasonable that no reasonable person with the same discretionary power would have performed it.[15]

Sain Communications had motive to cause harmful EMI to the SEANAV satellite system, as it would facilitate exclusive access to the Langerhans Archipelago. It stood to gain from the success of Peabody Enterprises' exploitation of the Langerhans Archipelago as its compensation was mostly comprised of stock and stock options.[16] Due to the EMI, Akera lost their capability to access Langerhans.[17]

ii. Negative inference must be drawn from the fact that Mheni has failed to produce any evidence to contradict Akera's assertion

The Eritrea Ethiopia Claims Commission read negative inferences of fact against Ethiopia because it could not present any evidence to rebut Eritrea's circumstantial evidence.[18] Further, it also held that if there is credible evidence to prove that there has been a change of status after the actions of Ethiopia, then the burden of proof for non-attribution shifted to Ethiopia.[19] The commission relied on the same sources of International Law as the ICJ.[20]

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9 *Compromis*, ¶ 8.
10 *Id.*
11 *Id.*
12 *Id.*
13 *Compromis* ¶ 16
14 South West Africa (Ethiopia. v. South Africa; Liberia v. South Africa), 1996 I.C.J. 6, (Jul.18) Judge Van Wyk Separate Opinion.
15 *Id.*
16 *Compromis*, ¶ 5.
17 *Compromis*, ¶ 9.
18 Civilians Claims (Eri. v. Eth,) Partial Award, Central Front, Eritrea Ethiopia Claims Commission, (Perm. Ct. Arb. 2004).
19 *Id.*
20 Eritrea-Ethiopia Claims Commission, Rules of Procedure, art.19, (2000).

Similarly, Mheni at no point has brought about evidence contrary to Akera's claims. Mheni's only response to Akera's claims has been to deny the allegations.[21] It is uncontested that there was a change of status in the situation before and after the launching of the X-12 Satellites.[22] The Court must put the burden of non-attribution on Mheni which has provided no evidence which reasonably proves that the EMI was not caused by Sain Communications.

B. Mheni is internationally responsible for the acts of Sain Communications

i. Mheni is liable for the actions of the X-12 satellites as it is the "launching state"

For a state to be a launching state it has to either launch the space object or procure it or has to be a state from whose territory or facility a space object is launched.[23]

a. Mheni procured the launch through its activities of its nationals

'Procure' means to 'actively and substantially participate' in a launch.[24] Procurement by a State occurs when it or its nationals are actively involved in 'acquiring, securing or bringing about the launch'.[25] The State that brings complicity to the launch meets the threshold of procuring the launch[26]. Manufacturing has been acknowledged as falling within the term 'procuring'.[27] The X-12 satellites were developed under Mhenian authorization[28] and used

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21 *Compromis*, ¶ 11.

22 *Compromis*, ¶ 8.

23 OST, art. VII; Convention on International Liability for Damage Caused by Space Objects, *entered into force* Oct. 9, 1973, 24 U.S.T. 2389, 961 U.N.T.S. 187 [hereinafter Liability Convention].

24 *Travaux preparatoires* to the Liability Convention, *Japan Working Paper* U.N. Doc. A/C.105/C.2/L.61 (June 23, 1969) *in* III MANUAL ON SPACE LAW, 354 (Nandasiri Jasentuliyana & Roy S.K. Lee eds., 1981) [hereinafter III MANUAL ON SPACE LAW]; Carl Q. Christol, *The "Launching State", in International Space Law*, Annuaire de Droit Martime et Aero-Spatial, 372 (1993); Karl-Heinz Bockstiegel, *The Terms "Appropriate State" and "Launching State" in the Space Treaties- Indicators of State Responsibility and Liability for State and Private Space Activities*, 34 PROC. COLLOQ. OUTER SP. 14 (1991).

25 William Wirin, *Practical implications of Launching State and Appropriate State Definitions, in* PROCEEDINGS OF THE 37TH COLLOQUIUM ON THE LAW OF OUTER SPACE 353,359 (1994); Armel Kerrest, *Remarks on the Notion of Launching State*, 42 Proc. Colloq. Outer Sp. 308, 311 (1999).

26 Karl H. Böckstiegel, *The Term 'Launching State' in International Space Law*, 31 I.I.S.L PROC. 80, 81(1994); H.A.Wassenbergh, *Public Law Aspects of Private Space Activities and Space Transportation in the Future*, 38 I.I.S.L PROC. 246, 247 (1995).

27 III MANUAL ON SPACE LAW.

28 *Compromis*, ¶ 7.

Mheni manufactured equipment.[29] Additionally, Sain Communications was substantially involved in bringing about the launch; this makes Mheni the launching state.[30]

b. By registering the X-12 Satellites, Mheni has acknowledged its liability for their actions

Under the Registration Convention, a space object may be registered on the registry of one State at any given time.[31] Additionally, Article VIII of the OST requires a State party on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object.[32] Article II of the Registration Convention establishes that the "launching state" shall register the space object.[33] The VCLT requires a treaty to be interpreted in good faith and in the light of its objects and purposes.[34] Mheni has acknowledged its liability for the launch of the X-12 Satellites by registering them in accordance with Registration Convention.[35]

ii. Mheni is responsible under Article VI of the Outer Space Treaty

Under Article VI of the OST, States parties have assumed direct responsibility for acts that would normally not be attributable to them, specifically, private space activities.[36] Additional evidence of this is found in Article XI OST, where State duties are triggered by the activities of the State or its nationals.[37]

The use of preparatory works and State Practice is recognized as customary rule of international law[38], and is recommended by eminent jurists[39], and by the ICJ[40]. An examination of the *travaux* shows that the intent of the parties to the OST was to allow private space activities only under the compromise that

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29 *Compromis*, ¶ 11 ¶ 16.
30 *Compromis*, ¶ 7.
31 Convention on Registration of Objects Launched into Outer Space, *entered into force* Sept. 15, 1976, 28 U.S.T. 695, 1023 U.N.T.S. 15 [hereinafter Registration Convention].
32 OST, art. VIII.
33 Registration Convention, art. II.
34 Vienna Convention on Law of Treaties, *entered into force* May 23, 1969, art. 31(3), 1155 U.N.T.S. 331 [hereinafter VCLT].
35 *Compromis*, ¶ 7.
36 Bin Cheng, *International Responsibility and Liability for Launch Activities*, 6 AIR & SPACE L. 297, 301 (1995); A.Christenson, *Attributing Acts of Omission to the State*, 12 MICH. J. INT'L L. 312, 194, 195 (1991).
37 OST, art. IX.
38 Maritime Delimitation and Territiorial Questions (Qatar v. Bahr.), 2001 I.C.J. 18 2001 (Mar. 16); SIR IAN SINCLAIR, THE VIENNA CONVENTION OF THE LAW OF TREATIES 153 (1982).
39 Hugh Thrilway, *The Law and Procedure of the International Court of Justice*, 3 BRIT. Y.B.INT'L L., 25 (1991); SIR IAN SINCLAIR, THE VIENNA CONVENTION ON THE LAW OF TREATIES 117 (1982).
40 Temple of Preah Vihear (Cambodia v. Thai), 1961 I.C.J. 27, 32 (July 28); Border and Transborder Armed Activities (Nigeria v. Honduras) 1988 I.C.J. 84, 84-5 (Dec. 28).

national governments would assume responsibility for non-governmental activity.[41]

The practice of States is to assume responsibility for their nationals. Under the International Space Station Intergovernmental Agreement, the partner states are responsible for ensuring that their nationals abide by the Crew Code of Conduct.[42] There was similar assumption by nations in the US-ESRO agreement concerning activities abroad the Spacelab.[43]

Additionally, State practice demonstrates that States authorise space activities involving their nationals wherever they are carried out.[44] Licensing is one of the primary methods by which States carry out their duty to authorise and supervise private space activities under Article VI,[45] and is thus "subsequent practice which establishes the consensus regarding interpretation."[46]

Mheni will be liable for all acts of Sain Communications as it is a Mhenian corporation founded, owner and controlled by Mhenian nationals.[47] The fact that the launch of X-12 satellites took place outside the Mhenian territory[48] is of no consequence in light of the aforementioned practice.

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41 The Declaration of Soviet Delegate Fedorenko, Legal Subcommittee on the Peaceful Uses of Outer Space, U.N. Doc. (A/AC.105/PV.22) (Sept. 13 1963); ANDREW J. YOUNG, LAW AND POLICY IN THE SPACE STATIONS ERA 148 (1989); ANDREW G. HAILEY, SPACE LAW AND GOVERNMENT 232 (1963).

42 Agreement among the Government of Canada, Governments of Member States of the European Space Agency, the Government of the Japan, The Government of the Russian Federation, and the Government of the United States of the America Concerning Cooperation on the Civil International Space Station, *entered into force* Jan. 29, 1998, art. 11, Temp. St. Dep't No. 01-52, CTIA No. 10073.000.

43 *Agreement between the Government for the United States of America and Member States of the European Space Research Organisation, for a Cooperative Programme Concerning Development, Procurement and the Use of Space Laboratory in Conjunction with the Space Shuttle System*, *in* SPACE STATIONS : LEGAL ASPECTS OF SCIENTIFIC AND COMMERCIAL USE IN A FRAMEWORK OF TRANSATLANTIC COOPERATION, 239 (Karl-Heinz Bockstiegel ed., 1985).

44 Review of the Concept of the Launching State, UN Secretariat, UNCOPUOS, U.N. Doc. No. A/AC.105/768 (2002); Space Activities Act, (No. 123) part 1, div.3, (1998 as amended) (Aust.); About Space Activity, Decree No 104, art. 9(2) (1993) (Russ.); Space Affairs Act, art.1, (No. 84 of 1993), (S. Afr.); Outer Space Act, ch.38, S.1, (1986) (U.K.); Commercial Space Launch Act, 49 U.S.C. 701, 70101 (7), (1984) (U.S.).

45 Commercial Space Launch Act, 49 U.S.C. 701, 70101 (7) (1984) (U.S.); PETER P.C. HAANAPPEL, *Possible Models for Specific Space Agreements*, *in* SPACE STATIONS: LEGAL ASPECTS OF SCIENTIFIC AND COMMERCIAL USE IN A FRAMEWORK OF TRANSATLANTIC COOPERATION 63 (Karl-Heinz Bocksteigel ed., 1985).

46 VCLT, art. 31(3).

47 *Compromis*, ¶ 5.

48 *Compromis*, ¶ 7.

a. The launch and operation of the X-12 Satellite system is a "national activity" of Mheni

National activities are activities carried out within the jurisdiction of a State, including personal jurisdiction, territorial jurisdiction and quasi territorial jurisdiction.[49] Under Article VI of the OST, states are responsible to the same extent for private national activities as they are for public international activities.[50] The ICJ has held that a company is considered to be a national of the State in which it is incorporated.[51] The State which has registered the space object has "effective jurisdiction" over the activities of the non-governmental agencies which have launched the space object.[52] Hence, the activities of Sain Communications in outer space are "national activities" of Mheni.

b. Mheni is the "Approriate State" for the purposes of the OST

The "appropriate State" is required to authorize and continually supervise the launch activities of non-governmental entities.[53] The "Appropriate State" is the State where the private company carrying on space activities has its principal place of business, the State under whose laws the company is incorporated or the State where the production of instruments takes place.[54] As the State with effective control and the strongest jurisdictional tie to the launch,[55] Mheni must bear responsibility for all of the launch activities that occurred and is therefore the "appropriate state".

C. Mheni has committed an internationally wrongful act by causing of harmful interference which prevented access to the SEANAV satellite PNT signals

i. ***Mheni's actions amount to contraventions of its obligations under the ITU Constitution***

The Convention of the ITU, the Constitution of the ITU ("ITU Constitution") and the Radio Regulations lay down the procedure for frequency and spectrum

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49 IAN BROWNLIE, SYSTEM OF THE LAW NATIONALS STATE RESPONSIBILITY PART I, 607 (2001).

50 Frans G. Von der Dunk, *Liability versus Responsibility in Space Law: Misconception or Misconstruction?,* 35 I.I.S.L PROC. 367 (1992).

51 Barcelona Traction, Light and Power Co., Ltd. (Belg. v. Spain), 1970 I.C.J. 3 (Feb. 5) [hereinafter Barcelona Traction].

52 OST, art. VI; Bernard Schmidt-Tedd & Stephan Mick, *Article VIII*, I COLOGNE COMMENTARY ON SPACE LAW 176 (Stephan Hobe, Bernhard Schmidt-Tedd eds., 2009).

53 OST, art. VI.

54 PETER P.C. HAANAPPEL, THE LAW AND POLICY OF AIR, SPACE AND OUTER SPACE: A COMPARITIVE APPROACH 60 (2003); Bin Cheng, *Article VI of the 1967 Space Treaty Revisited: International Responsibility, "National Activities", and "The Appropriate State"*, 26(1) J. Space. L. 7, 28 (1998); Ricky J. Lee, *Liability Arising From Article VI of the Outer Space Treaty: States, Domestic Law and Private Operators*, 48 Proc. Colloq. Outer Sp. 216 (2005).

55 *Compromis* ¶ 5, ¶ 8.

allocation.[56] These instruments seek to ensure efficient and economic use of the same and prevent harmful interference.[57] "Harmful interference" is "interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with the Radio Regulations."[58] Member states must take all practicable measures to prevent such interference.[59] By causing the EMI, Mheni has contravened its obligations undertaken by it under the ITU Constitution.[60]

ii. ***Alternatively, even if Mheni was compliant with the ITU regulations, it is not absolved of International responsibility***

The membership to the ITU and an assumption of compliance cannot absolve Mheni of its liability because the ITU instruments do not provide against situations when the Member State is itself complicit in the harmful interference. They provide for procedures to prevent harmful interference, but the onus is placed on the State administration.[61] In the event of disagreements during the coordination phase, the entry of the frequency band may be made into the Master International Frequency Register ("MIFR") with 'unfavourable findings' and the disagreement by another administration remains unresolved.[62] Thus, the fact that Mheni is a member of the ITU instruments[63] is insignificant insofar as the prevention of harmful interference is concerned, as the coordination process itself does not efficiently prevent harmful interference as it is merely a bilateral negotiation between the concerned States which may put Member States at a disadvantage.[64]

The ITU further fails to provide an effective method to prevent harmful interference after the recording of an assignment. The burden to eliminate this interference lies solely with the administration whose assignments were the basis of unfavourable findings.[65] If the administration fails to do this,

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56 Constitution of the International Telecommunications Union, *entered into force* July 1, 1994, art. 4.1 (29), 1825 U.N.T.S. 331, [hereinafter ITU Constitution].

57 ITU Constitution, art. 45.

58 *Id.*

59 ITU Constitution, art. 45(3).

60 *Compromis*, ¶ 18.

61 ITU Constitution, art. 6.1,45,48; Convention of the International Telecommunications Union, *entered into force* January 1, 1975, art. 10,12, 1825 U.N.T.S. 390; World Radiocommunications Conference -2012 Radio Regulations of the International Telecommunications Union, art. 1.169, 4.5, 4.10, 11.42 [hereinafter Radio Regulations].

62 Radio Regulations, art. 11.41.

63 *Compromis*, ¶ 18.

64 Radio Regulations Board Report to World Radiocommunication Conference – 2000, Resolution 80, World Radiocommunications Conference - 2007, RES80-2.

65 Radio Regulations, art. 11.42.

there exists no provision for imposing sanctions on Member States.[66] The Regulations Bureau is merely supposed to make an analysis of the situation and send a non-binding recommended action.[67] The only effective medium to resolve disputes with certainty is the Optional Protocol on the Compulsory Settlement of Disputes Relating, which Mheni rejected.[68]

The need for an increased obligation on Member States was recognized in the World Radiocommunication Conference 2012.[69] However the amendments did not empower the ITU to take unilateral action against non-compliant States[70], and the obligation to remove the interference remains with the State, requiring it to 'ascertain the facts, fix the responsibility, and take the necessary action.'[71] This is ineffective against a State which is complicit in the harmful interference. The ITU regime allows Mheni to escape liability by merely denying the liability of the X-12 satellite system in causing the interference.[72] This was demonstrated when harmful interference from Iran hampering the EUTELSAT satellite operations could not be stopped despite the WRC-12 amendments or RRB[73] as Iran denied being the source of the interference.[74]

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66 Ram S. Jakhu, *Dispute Resolution under the ITU Agreements*, Institute of Air and Space Law, McGill University, http://swfound.org/media/48115/Jakhu-Dispute%20resolution%20under%20the%20ITU%20agreements.pdf.

67 Radio Regulations, art. 15.46.

68 *Compromis* ¶ 12.

69 Article 11.42, 15.21, Radio Regulations.

70 Zachary T. Eytalis, *International Law and the Intentional Harmful Interference with Communication Satellites*, Institute of Air and Space Law McGill University, August 2012, http://digitool.library.mcgill.ca/webclient/StreamGate?folder_id=0&dvs=1394783657002~773.

71 Radio Regulations, art. 15.21.

72 *Compromis*, ¶ 11.

73 Radio Regulation Board – 61, (November 2012); Radio Regulation Board – 62, (March 2013) *in* Yvon Henri, *The ITU – Challenges in the 21st Century: Satellite Harmful Interference/Jamming*, (2013), http://www.unidir.ch/files/conferences/pdfs/radiofrequency-interference-the-potential-impact-of-intentional-and-accidental-interference-for-space-security-en-1-833.pdf.

74 Peter B. de Seldding, *ITU Implore Iran to Help Stop Jamming*, SPACE NEWS (26 March 2010), http://www.spacenews.com/policy/100326-itu-implores-iran-help-stop-jamming.html; Press Release, *ITU Radio Regulations Board urges Iran to end interference hampering EUTELSAT satellite operations*, INTERNATIONAL TELECOMMUNICATIONS UNION, (26 March 2010), http://www.itu.int/newsroom/press_releases/2010/14.html.

iii. ***Mheni's actions are in contravention of its obligations under the Outer Space Treaty***

Mheni violated Article I of the OST[75] when it interfered with Akera's SEANAV satellite system. Mheni's action of causing harmful EMI against Akera's satellite directly interfered with Akera's ability to use and explore outer space thereby violating Article I of the OST. Mheni's actions violated Article IX of the Space Treaty.[76] Akera had an interest in maintaining its satellite in orbit for use in commercial and government endeavours and was heavily reliant on it.[77] It is uncontested that Akera suffered economic loss due to the loss of access to the SEANAV PNT Signal.[78] The I.C.J. has recognized that a State must respect the economic well-being of another State.[79] Mheni failed to give due regard Akera's interests in its operation of X-12 satellites.

iv. ***Mheni interfered with Akera's right to Remote Sense its own territory and the Langerhans Archipelago***

In 1986 the U.N.G.A. adopted the Principles Relating to Remote Sensing of the Earth from Outer Space.[80] The ICJ has held that when a U.N.G.A. resolution declares principles of customary international law; the resolution is binding *erga omnes*.[81] Even if it is not binding, the resolution has normative value providing "evidence important for establishing the existence of a rule or the emergence of *opinio juris*"[82]

The Principles reflect customary international law since they reaffirm respect for international law and treaties such as the U.N. Charter, the OST, and the Registration Convention[83], reaffirm the principles of freedom of outer space[84], international responsibility for space activities[85] and respect for State sovereignty.[86] They were adopted by consensus and without objection.[87] The

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75 OST, art. I. BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW 234 (2004); Ram Jakhu, *Legal Issues Relating to the Global Public Interest in Outer Space*, 32 J. SPACE L. 31, 37 (2006).

76 OST, art. IX.

77 *Compromis*, ¶ 2.

78 *Compromis*, ¶ 9.

79 Fisheries Jurisdiction Case (U.K. v. Ice.) 1974 I.C.J 1, 26-27 (July 25).

80 G.A. Res. 41/65, Annex, U.N. GAOR, 41st Sess., U.N. Doc. A/RES/41/65 (1986).

81 Military and Paramilitary Activities in Nicaragua (Nicar. v. U.S.) (Merits), 1986 I.C.J. 14 ¶¶ 188,191 (June 27) [hereinafter Nicaragua]; DRC v. Uganda ¶162.

82 Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 226 ¶ 70 (July 8) [hereinafter Nuclear Weapons].

83 Principles Relating to Remote Sensing of the Earth from Outer Space, GA.Res. 41/65 U.N. Doc. A/41/64, princ. III, XI.

84 *Id.* at princ. IV.

85 *Id.* at princ. XIII.

86 *Id.* at princ. IX.

87 CARL Q. CHRISTOL, SPACE LAW: PAST, PRESENT AND FUTURE 73 (1991) [hereinafter CHRISTOL]; *Supra* note 49, at 589.

Principles "achieved a balance"[88] and represented "equitable legal relations"[89] as it convinced the "sensed" states of the benefits that could be derived from the technology.[90] The Principles were therefore grounded in existing State practice before being adopted by consensus.[91] The EMI caused by the X-12 Satellites was in violation of the aforementioned principles.

v. ***Mheni breached customary international law by harmfully interfering with beneficial and efficient use of res communis***

Jurisdictional competence over *res communis* has historically been recognized.[92] These special jurisdictional zones vest the right to reasonably use part of a global common area, but they do not vest any sovereignty rights over those areas.[93] The semi-exclusive use must be reasonable and not unduly hamper or interfere with another State's freedom to use the commons.[94] The causing of harmful interference by Mheni violated the right of Akera to use the global common area. It also violates a fundamental principle of International law that requires a State to use its property in such a way so as to not harm others.[95]

vi. ***The EMI violated the principle of non-intervention***

The principle of non-intervention has been recognised as part of international law[96] and includes the prohibition on a state preventing another from exercising sovereignty over its economic and other resources.[97] The ICJ has opined that "[t]he element of coercion, which defines, and indeed forms the very essence of, prohibited intervention".[98]By denying access to SEANAV PNT signals, Mheni has violated the principles of non-intervention.

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88 U.N.Doc. A/AC. 105/C.2/SR. 439, at 5, (Apr. 3, 1986) (Brazil's view), *cited in* CHRISTOL at 74.

89 U.N.Doc. A/AC.105/C.2/SR.440, at 5, (Apr. 8, 1986) (Mexico's view), *cited in* CHRISTOL at 74.

90 CHRISTOL at 74.

91 *Id.* at 93.

92 F.Kenneth Schwetje, *Protecting Space Assets: A Legal Analysis of "Keep-out Zones"*, 15 J. SPACE L. 131, 141 (1987).

93 *Id.*

94 *Id.*

95 Trail Smelter Arbitration (U.S. v. Canada) 1938/1941, R.I.A.A. 1905; Lake Lanoux Arbitration (Fr. V. Spain), 24 I.L.R. 101 (1957); Corfu Channel; Settlement of the Gut Dam Claims (U.S. v. Can.), 8 I.L.M 118 (1969).

96 Nicaragua, ¶ 202.

97 Declaration on Non-Intervention, G.A. Res. 2131 (XX) A/RES/36/103, (1981).

98 Nicaragua, ¶ 205; OPPENHEIM'S INTERNATIONAL LAW 1 432 (Robert Jennings & Arthur Watts eds., 2008).

vii. *Mheni's actions were in violation of the prohibition on the Use of Force*

The harmful interference caused by Sain Communications amounted not only to an illegal use of force, but also to an armed attack against Akera. This has been established in the subsequent contention as a justification for Akeran actions.

I. Akera acted in conformity with International law by disabling the X-12A satellite.

C.

A. Mheni has violated the Obligation to refrain from Use of Force under Art. 2(4) of the UN Charter

Art. 2 (4) of the UN Charter requires that States should refrain from "the threat or use of force against territorial integrity or political independence of any State, or in any other manner inconsistent with the purposes of the United Nations"[99]. This is as a rule of customary international law[100] as well as a *jus cogens* norm.[101] The article proscribes all use of force irrespective of the motivation behind it.[102] This view is supported by the *travaux*,[103] finds support in the resolutions of the U.N. Security Council[104] and the U.N. General Assembly[105]. Hence, the use of force, for purposes other than self-defence or without the authority of the U.N. Security Council is illegal.

i. Non-kinetic weapons qualify as "use of force" under Art. 2(4) since they have the effect of use of force

The aforementioned duty on states to refrain from using force is not weapon specific.[106] Subsequent practice reveals that use of certain dual-use non-kinetic weapons such as biological or chemical agents are treated as a use of force under Article 2(4).[107] This is based on their ability to destroy life and property.[108]

The criterion recognized to establish whether a new technology has become a form of warfare is "whether the technique is associated with the armed forces

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99 U.N. Charter, art. 2, para 4.

100 Nicaragua, ¶ 100-101; RANDELZHOLFER, THE CHARTER OF THE UNITED NATIONS: A COMMENTARY 112 (2002).

101 Nicaragua, ¶ 100; Oil Platforms (Iran v. U.S.) 2003 I.C.J. 161, 330 (Nov. 6) Judge Simma Separate Opinion.

102 Corfu Channel, ¶ 109.

103 BROWNLIE, INTERNATIONAL LAW AND THE USE OF FORCE BY STATES 266 (1963).

104 S.C. Res. 545, U.N. Doc. S/Res/545 (Dec. 20, 1983); S.C. Res. 455, U.N. Doc. S/RES/455 (Nov. 23, 1979); S.C. Res. 332, U.N. Doc. S/RES/332 (Apr. 21, 1973).

105 G.A. Res. 3314 (XXIV), U.N. Doc. A/RES/29/3314 (1974).

106 Nuclear Weapons ¶ 39.

107 Nicaragua, ¶ 228; Convention on the Prohibition of Military or any Hostile Use of Environment Modification Techniques, G.A. Res. 31/72 (Dec. 10, 1976).

108 Nuclear Weapons ¶¶ 38-39; Brownlie, *supra* note 103, at 362.

of the State that uses it"[109]. This is in furtherance of the VCLT which requires interpretation of a treaty by taking into account subsequent practice of the parties regarding its interpretation.[110]

The United States Joint Vision 2020 expressly refers to the employment of non-kinetic *weapons* in the area of international operations.[111] The 2004 National Military Strategy of the United States of America refers to "weapons of mass effect" which "rely more on disruptive impact than destructive kinetic effects".[112] The Russian Federation has stated that it does not consider information warfare against the Russian Federation or its armed forces as a non-military phase of a conflict regardless of the absence of casualties.[113] Estonia equated cyber blockades to naval blockades on ports preventing a state's access to the world.[114] These instances of state practice clearly prove that the states have consider use of non-kinetic weapons analogous to space based jamming as amounting to use of force.

It has been affirmed that the territory of a State shall not be the object, *even temporarily*, of military occupation and other measures of force taken by another state in contravention of the charter.[115] Therefore, denial of communications to the SEANAV satellites *having the specified effect* amounts to use of force within the meaning of Article 2(4).

ii. Mheni's actions were against the political independence of Akera

Attacks on government vessels on high seas constitute a use of force against "political independence" of the State, because they impair the freedom of the State in relation to the unrestricted use of the high seas.[116] In the present case, the acts of Mheni impaired Akera's freedom with respect to the unrestricted use of space, making it an act against Akeran political independence.

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109 D.B.Silver, *Computer Network Attack as a Use of Force under Article 2(4) of the United Nations Charter*, *in* COMPUTER NETWORK ATTACK AND INTERNATIONAL LAW 84 (M.N.Schmitt & B.T.O'Donnell eds., 2001).

110 VCLT, art. 31 para 3(b).

111 JOINT VISION 2020 - AMERICA'S MILITARY: PREPARING FOR TOMORROW, 23 (2000), www.fs.fed.us/fire/doctrine/genesis_and_evolution/source_materials/joint_vision_2020.pdf.

112 THE NATIONAL MILITARY STRATEGY OF THE UNITED STATES OF AMERICA-A STRATEGY FOR TODAY; A VISION FOR TOMORROW, 1 (2004), www.defense.gov/news/mar2005/d20050318nms.pdf.

113 V.M. Antolin-Jenkins, *Defining the Parameters of Cyberwar Operations: Looking for Law in All the Wrong Places?*, NAVAL LAW REVIEW 51 (2005), 132 (166).

114 NATO PARLIAMENTARY ASSEMBLY, NATO AND CYBER DEFENSE, 173 DSCFC 09 E Bis, ¶ 59 (2009), www.nato-pa.int/default.asp?SHORTCUT=1782.

115 G.A. Res. 3314 (XXIX) G.A.O.R. 29th Sess., Supp. No. 31, U.N. Doc. A/9361 (1974).

116 ASRAT, PROHIBITION OF FORCE UNDER THE UNITED NATIONS CHARTER, A STUDY OF ARTICLE 2(4), 159,160 (1991).

This cannot amount to accidental infringement with the political independence as on the basis of past hostility[117] and disagreements with regard to the Langerhans Islands[118], and in the light of the "pin-prick" doctrine where the legality of force is considered in light of relations between the concerned states[119] the determination of use of force is objectively established.

iii. The harmful EMI caused by Mheni amounted to an "armed attack" against Akera

The ICJ has recognised that a definition of "armed attack" does not exist in the charter and is not part of treaty law.[120] The decisions of the ICJ have indicated that it is the gravity[121] of the use of force and the "scale and effects"[122] of the same that indicate whether the same is an armed attack or not. The effect must also take into account, the effect on *economic and security infrastructure* and its subsequent effect of *substantial impairment of its economy*. [123] The ICJ has qualified the "gravity" or the "scale and effects" doctrine. It has held that had the requirements of attribution of state responsibility been satisfied, Iran would have been guilty of an armed attack for the single incident of the mining of the USS Samuel B Roberts.[124] The Court also extended the same standard to the mining of the Texaco Caribbean.[125]

Since the U.N Charter came into force, a type of aggression that neither produced kinetic effects nor caused physical injury and/or destruction was universally considered capable of qualifying as an armed attack: the naval blockade. Israel asserted that the blockade of the Straits of Tiran constituted an armed attack, which allowed it to invoke its Article 51 rights.[126] The International Community accepted this position.[127]

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117 *Compromis*, ¶ 1.
118 *Compromis*, ¶ 4.
119 Nicaragua, ¶ 99; DRC v. Uganda, ¶ 148; Robert Ago, *Addendum to Eighth Report on State Responsibility,* II(1) Y.B. INT'L L. COMM. 13, 69-70 (1980); ROSALYN HIGGINS, THE DEVELOPMENT OF INTERNATIONAL LAW THROUGH POLITICAL ORGANS OF THE UNITED NATIONS 201 (1963).
120 Nicaragua, ¶ 176.
121 Nicaragua, ¶ 191
122 Oil Platforms (Iran v. U.S.) (Merits) 2003 I.C.J. 161, ¶ 51 (Nov. 6) [hereinafter Oil Platforms].
123 A. CONSTANTINOU, THE RIGHT OF SELF-DEFENCE UNDER CUSTOMARY INTERNATIONAL LAW AND ARTICLE 51 OF THE UN CHARTER, 63-64 (2000).
124 Oil Platforms, ¶ 72.
125 *Id.* at ¶ 64.
126 U.N. GAOR, 5th Emer. Sess., 1526th meeting, ¶ 133, U.N. Doc., A/PV. (1967).
127 Jonathan E Fink, "*The Gulf of aqaba and the Strait of Tiran: The Practice of "Freedom of Navigation" After the Egyptian-Israeli Peace Treaty*, 42 Nav. L. Rev. 121, 127-28 (1995).

EMI is akin to naval blockades since they both are designed to inhibit access to a common medium, without proximately causing physical injury or destruction, so as to seriously jeopardize a nation's economic and social well-being such that they rise to the level of armed attacks.[128] Since 1999, the United States has maintained that purposeful interference with the U.S. space systems would be an infringement on the sovereign rights of the United States and it may take all appropriate self-defense measures to respond to the same.[129] The use of 'interference" suggests that non-destructive attacks against satellites, such as jamming, could constitute armed attacks the trigger self-defense rights.[130]

Whether a blockade actually threatens such damage is predicated upon the scale and effect of its imposition, consistent with the principle announced by the *Nicaragua* court.[131] In addition to the scale of the blockading force, the vulnerability of the victim state to the effects of a blockade is a key factor in analyzing whether a blockade constitutes an armed attack.[132] Therefore, the scale of the blockade is not the only key factor to adjudicate whether it is an armed attack; it must be contextualized by the degree to which the target relies upon the sea.

Akera allocates a significant part of its budget to civil and military space programme.[133] The SEANAV satellite system was created to counter the difficulties in trade and travel because of the dangerous reefs and other natural hazards present in the waters throughout Akera.[134] Resultantly, Akeran economy and security has developed due to the SEANAV system.[135]

The use of EMI by Mheni caused [1] an adverse effect on economic and security infrastructure[136], [2] substantial impairment of economy[137] and [3] loss of life and property[138] as the Akeran economy is built on the export of oil and natural gas. The EMI has had the effect causing substantial reduction in international shipping and transit through Akera's waters because of denial of

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128 G.A. Res. 29/3314, Annex, art. 3, U.N. Doc. A/Res/29/3314 (1974); TOM RUYS, 'ARMED ATTACK' AND ARTICLE 51 OF THE UN CHARTER: EVOLUTIONS IN CUSTOMARY LAW AND PRACTICE 130 (2011).

129 Memorandum from William Cohen, Sec'y of Def. for Sec'ys of Military Dep't et al., Department of Defense Space Policy, at 3 (July 9, 1999) [hereinafter Space Memorandum]; Dep't of Def. National Security Space Strategy: Unclassified Summary 10 (2011)

130 Space Memorandum, at 3.

131 Nicaragua, ¶¶ 191, 195.

132 Nicaragua, ¶ 197.

133 *Compromis*, ¶ 1.

134 *Compromis*, ¶ 2.

135 *Id.*

136 *Compromis*, ¶8, ¶9.

137 *Compromis*, ¶9.

138 *Compromis*, ¶8.

access to safe navigation.[139] Resultantly, Akeran oil exports and trade declined *significantly*.[140]

B. The actions of Sain Communications are attributable to Mheni

A state is responsible for illegal use of force or an armed attack by non-state actors if the actions that constitute the same are attributable to the state.[141] The ICJ has interpreted this attribution to mean the involvement of a state, in general and not for specific operations, to any non-state actor's movement(s) which resulted in the non-state actor committing illegal uses of force.[142] The involvement required is "substantial involvement"[143] and the non-state actors do not need to act "by or on behalf"[144] of a state. This includes logistical support and exercise of control over the actions of the non-state actor in order to interfere with another state.[145]

Article VI makes states internationally responsible for activities of their nationals in outer space and places an obligation on states to assure that non-governmental entities comply with the OST and international law.[146]

Mheni was under an obligation to maintain control over the activities of Sain Communications. All of its activities were licensed and authorized by Mheni and therefore it exercised the required direction over Sain Communications.

C. Mheni made no efforts to resolve the dispute through reconciliation

Mheni's attack is in contravention of Article 1(1) of the UN Charter.[147] Rather than directly attack Akera's satellite, Mheni had an obligation to seek reconciliation with Akera under Article 33 of the U.N. Charter.[148]

D. Even if there is a justification or exemption to the use of force by Mheni, it is precluded from claiming them

Belligerent rights may be exercised *only by States* to be consistent with international law.[149] Consequently, non state actors cannot use these

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139 *Compromis*, ¶ 9

140 *Id.*

141 Nicaragua, ¶ 228; Oil Platforms, ¶ 51

142 Nicaragua, ¶ 228

143 Military and Paramilitary Activities In and Around Nicaragua (Nicar. v. U.S.), 1986 I.C.J. 14 (June 27) Judge Schwebel Dissenting Opinion [hereinafter Nicaragua Schwebel].

144 Nicaragua, ¶ 195; DRC v. Uganda, ¶ 146; Legal Consequences on the Construction of a Wall in the Occupied Palestine Territory, Advisory Opinion, 2004 I.C.J. 136 (July 9) [hereinafter Wall Case].

145 Nicaragua, ¶ 228.

146 OST, art. VI.

147 U.N. Charter, art. 1, para 1.

148 U.N. Charter, art. 33.

149 Gazzini, *The Rules of the Use of Force at the beginning of XXI Centrury*, 11 J CONFLICT SECURITY L 319 (2006); Michel Bourbonniere & Ricky J. Lee, *Legality of*

arguments to justify the legality of deployment of weapons in outer space[150], though commentators have suggested that State actors have an inherent right to use force in self defence against non-State actors.[151] This principle can also be noticed in the *Hostages Trial (United States of America v. Wilhelm List)*.[152] Regardless of the attribution of the actions of Sain Communications to Mheni, it cannot justify these actions nor can it preclude wrongfulness for the use of force committed by Sain Communications, a non-state actor.

E. Akera used force in Conformity with the UN Charter and associated Customary International Law

Akera used force to defend itself from the harmful EMI caused by Mheni. The right to self-defence is available in case the state exercising it is the victim of an armed attack.[153] Further, the use of force must be necessary and proportionate.[154]

i. It was Necessary for Akera to use Force to defend itself

Defensive uses of force are necessary when it is the last possible alternative to protect oneself from attack.[155] The ICJ has held that necessity for self-defence must be viewed from the perspective of the defending state.[156] Necessity includes considerations of less destructive alternatives, such as negotiations.[157]

Deployment of Conventional Weapons in Earth Orbit: Balancing Space Law and the Law of Armed Conflict, EJIL ,VOL.18 NO.5, 886 (2007).

150 *Id.*

151 Bothe, *Terrorism and the Legality of Pre-Emptive Force*, 14 EJIL 227 (2003); Ruys & Verhoeven, *Attacks by Private Actors and the Right of Self Defence*, 10 J CONFLICT SECURITY L 289 (2005).

152 Hostages Trial (U.S. v. Wilhelm List et al.) 8 Law Reports of Trials of War Criminals, ¶ 56 (1949); Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), *entered into force* June 8, 1977, art. 48, 1125 U.N.T.S.

153 Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 226 ¶¶ 161,263 (July 8) [hereinafter Nuclear Weapons]; DRC v. Uganda, ¶¶ 143,146; Wall Case, ¶ 139; Oil Platforms, ¶¶ 51,71; Nicaragua, ¶¶ 35,127,191, 210, 211,237.

154 Rosalyn Higgins, *International Law and the Avoidance, Containment and Resolution of Disputes-General Course on Public International Law, in* 230 RECUEIL DES COURS 9-342, 296 and 310 (1991); CHRISTINE GRAY, INTERNATIONAL LAW AND THE USE OF FORCE, 128, 148 (2008).

155 Nuclear Weapons ¶¶ 161,263; YORAM DINSTEIN, WAR, AGRESSION AND SELF DEFENSE, 184 (2001).

156 Donald Nungesser, *United States' Use of the Doctrine of Anticipatory Self-Defense in Iraqi conflicts*, 16 PACE INT'L L. REV.193, 195 (2004).

157 Air Services Agreement (U.S. v. Fr.), (1978) 18 R.I.A.A. 1013[hereinafter Air Services Agreement].

In the present case Akera had exhausted all possible alternatives before taking the measure in question as it has sought to resolve the disputes through negotiations[158], settlements[159] and intervention by the UN[160].

ii. The Akeran Use of Force was proportionate

The concept of proportionality recognizes a State's need to restore equality in power between the parties in order to encourage negotiation towards a solution.[161] The proportionality of defensive force is defined in terms of nature, size and duration of the defensive use of force.[162] It takes into account the series of activities that formed part of a sequence or a chain of events which lead to the act of self-defence.[163] The test of proportionality is *qualitative and not quantitative*.[164]

In the present case, the function of the SEANAV-2 system was to transmit a protected signal[165]. Even though incidentally it led to the destruction of the X-12A satellite[166], its actual purpose was to counteract the EMI[167]. This can be classified as a qualitatively proportionate measure.

iii. ***Even if the armed attack is not attributable to Mheni, Akera had a right to self defence***

State Practice shows condonation of a state exercising its right to self-defence against non-state actors by the European Union, Brazil, Chile, Denmark, Algeria, Norway, Jordan, Indonesia, Turkey, Iran, Djibouti, India, and Venezuela.[168] Several states offered USA Military support for Operation Enduring Freedom[169]. The right is available to a state in case the state to which the non-state actor belongs is unwilling or unable to stop the illegal actions of the non-state actor.[170]

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158 *Compromis*, ¶ 10.
159 *Compromis*, ¶ 12.
160 *Compromis*, ¶ 13.
161 Air Services Agreement, at 1025-1026.
162 Oil Platforms, ¶ 72; DRC v. Uganda, ¶ 147.
163 MALCOLM N. SHAW, IINTERNATIONAL LAW, 1032 (2003).
164 *Addendum to the Eighth Report on State Responsibility*, Y.B.INT'L L.COMM'N 13, U.N. Doc A/CN.4/318/Add.5-7 (1980); R. St. J. Macdonald, *The Nicaragua Case: New Answers to Old Questions?*, 24 CAN. Y.B. INT'L LAW 127, 153 (1986).
165 *Compromis*, ¶ 14.
166 *Compromis*, ¶ 16.
167 *Compromis*, ¶ 16.
168 S.C. Res. 1368, U.N. Doc. S/Res./1368 (Sept. 12, 2001); S.C. Res. 1373, U.N. Doc. S/Res./1373 (Sept. 28, 2001); G.A. Res. 56/44, U.N. GAOR, U.N. Doc A/56.PV44.
169 David Gerleman and Jennifer Stevens, *Operation Enduring Freedom: Foreign Pledges of Military & Intelligence Support*, CRS Report for Congress, (October 17, 2001), http://fpc.state.gov/documents/organization/6207.pdf.
170 Kimberley N. Trapp, *Back to Basics: Necessity, Proportionality, and the Right of Self-Defence against Non- State Terrorist Actors*, THE INTERNATIONAL AND

The ICJ has never denied the right of self-defence against non-state actors. The Court has stated that where non state actors have perpetrated an armed attack against a state, the right to self-defence against the state to which the perpetrators belong is only applicable if the actions of the non-state actors are attributable to that state.[171] Separate Opinions have expressed the view that the issue of self defence against non-state actors and not against their state of origin has not been adequately explored by the Court.[172] The existence of such a right resolves the problem of a state being left remediless in case a non-state actor from another state commits an armed attack against the state and this is the reasoning based on which jurists have argued in favour of the existence of this right.[173]

Akera's actions are a valid exercise of their right to self-defence and were taken against Sain Communications which is a non-state actor. They were necessary since Mheni had refused to act to stop Sain Communications.

iv. If the use of force does not amount to an armed attack, Akera's actions were legal forcible countermeasures

The threshold for an armed attack being a grave use of force allows for the possibility of an illegal use of force which did not amount to an armed attack.[174] This would leave the victim state remediless since it would be unable to respond with any defensive measures.[175] In such cases the victim state had a right to take recourse to forcible countermeasures.[176]

Even if the EMI did not amount to an armed attack, it was an illegal use of force. Akera cannot be without remedy and has the right to take defensive measures. These measures are legal since they are legal forcible countermeasures.

COMPARATIVE LAW QUARTERLY, VOL. 56, NO. 1 141-156 (2007); Micheal N. Schmitt, *"Change Direction" 2006: Israeli Operations in Lebanon and the International Law of Self-Defense*, MICH. J. INT'L L. 127, 136 (2008).

171 Nicaragua, ¶ 195; DRC v. Uganda, ¶ 146; Wall Case, ¶ 139.

172 Armed Activities on the Territory of the Congo (Dem. Rep. Congo v. Uganda) (Merits), 2005 I.C.J. 156 ¶¶ 4-15 (Dec. 19) Judge Simma Separate Opinion; Legal Consequences on the Construction of a Wall in the Occupied Palestine Territory, Advisory Opinion, 2004 I.C.J. 136 ¶ 35 (July 9) Judge Koojimans Separate Opinion; Armed Activities on the Territory of the Congo (Dem. Rep. Congo v. Uganda) (Merits), 2005 I.C.J. 156 ¶ 9 (Dec. 19) Judge Koroma Declaration; Armed Activities on the Territory of the Congo (Dem. Rep. Congo v. Uganda) (Merits), 2005 I.C.J. 156 ¶¶ 19-30 (Dec. 19) Judge Koojimans Separate Opinion.

173 *Supra* note 170.

174 Oil Platforms (Iran v. U.S.) 2003 I.C.J. 161, ¶¶ 12,14 (Nov. 6) Judge Simma Separate Opinion.

175 *Id.*

176 *Id.*; Nicaragua, ¶ 249.

F. In any event, Mheni is foreclosed from claiming Akeran actions as justification for its conduct as it has come to the court with unclean hands

Mheni is foreclosed from making such claims as it has come to Court with unclean hands.[177] The doctrine of clean hands mandates that whosoever seeks the assistance of a court must come to the court with clean hands."[178] The PCIJ[179], the ICJ[180], jurists[181] and state practice[182] have affirmed the same.

Mheni has violated its obligations under international law by seeking equity against acts which it itself is guilty of committing. Firstly, it has breached its obligations under the UNCLOS by mining in a claimed economic zone.[183] Secondly, it has committed internationally wrongful acts in violation of the OST and general international law. It is therefore precluded from claiming reparations.

II. Mheni is liable to Akera for the loss of the unmanned aerial vehicle, the damage to the military facility and the deaths of the two Akeran military personnel.

A. Mheni is liable under the provisions of the Liability Convention

i. Mheni is liable under Article II of the Liability Convention

The Liability Convention provides that a State which suffers damage or whose natural or juridical persons suffer damage, may present a claim for compensation for such damage.[184] It provides for absolute liability for damage caused on the surface of the Earth.[185] While the term "caused" is not defined in the Liability Convention, the drafters of the Convention recommended that it should be interpreted flexibly.[186] The phrase "caused by" used in the definition of damage under the Liability Convention, requires only a causal connection

177 International Law Commissionn, Summary Record of 2793rd Meeting, *Diplomatic Protection,* [2004] I Y.B. Int'l L. Comm'n 11, ¶4, U.N.Doc. A/CN.4/SR.2793.
178 Case Concerning Legality of Use of Force (Yugoslavia v. Belg.), 1999 I.C.J. 124 (June 2).
179 The Diversion of Water from the Meuse (Neth. v. Belg.), 1937 P.C.I.J. (ser.A/B) No.70 (June 28).
180 Nicaragua Schwebel, ¶ 272; Case Concerning the Arrest Warrant of 11 April of 2000 (Dem. Rep. Congo v. Belg.), 2002 I.C.J. 3, ¶ 35 (Feb. 14) Judge Van den Wyngaert Dissenting Opinion.
181 G FITZMAURICE, THE GENERAL PRINCIPLES OF INTERNATIONAL LAW, CONSIDERED FROM THE STANDPOINT OF THE RULE OF LAW, 92(2) RDC 1, 119 (1957).
182 Legality of Use of Force (Yugoslavia v. U.S.), Doc. CR.99/24, ¶3.17 (May 12, 1999) (Oral submissions of Agent of the United States).
183 *Compromis*, ¶ 9.
184 Liability Convention, art. VIII (1).
185 Liability Convention, art. II.
186 CARL Q. CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 96 (1982).

between the accident and the damage caused, irrespective of physical impact.[187] In fact, the *travaux préparatoires* indicate that originally the term "collision" was used which was later rephrased as "caused by" due to the mutual agreement by States that not all damage was a result of physical contact.[188] This implies that a physical impact is not necessary for a claim under the Liability Convention. Such an interpretation is supported by the victim-oriented purpose of the Convention.[189] The drafters contemplated "adequate causality", as opposed to direct causality as opposed to direct causality, as sufficient to justify compensation for damages.[190]
It is uncontested that the EMI was responsible for the crash of the UAV[191] . The Liability Convention covers the *additional consequences* produced as a result of the initial damage caused by a space object.[192]. The EMI was the "cause" for the damage to Akeran property and personnel[193]. Mheni is liable since it was the launching state for the X-12 satellites.

ii. Alternatively, Mheni is liable under Article III of the Liability Convention
Article III provides for fault-based liability when damage is caused by one space object elsewhere than on the surface of the Earth. The Liability Convention does not explicitly define fault.[194] States may incorporate general principles of international law to elaborate unclear portions of the Space Treaties.[195] The principle of 'fault' refers to a failure to comply with a legal duty or obligation.[196] States are held at fault if they have breached an international obligation and if another State has suffered damages as a

187 Jochen Pfeifer, *International Liability for Damage Caused by Space Objects*, 30 GER. J. AIR & SPACE L. 242 (1981); WF Foster, *The Convention on International Liability for Damage caused by Space Objects,* 10 CANADIAN YEARBOOK OF INTERNATIONAL LAW 155 (1972) [hereinafter Foster].
188 U.N. GAOR, 9th Sess., at 52, UN Doc. A/AC.105/C.2/SR.94 (July. 3rd, 1968) (French, Canadian & Italian delegate).
189 CHRISTOL at 211; BIN CHENG, STUDIES IN INTERNATIONAL SPACE LAW 314 (2004).
190 Bin Cheng, *Convention on International Liability for Damage Caused by Space Objects*, in MANUAL ON SPACE LAW 83 (1979).
191 *Compromis*, ¶ 8.
192 Foster at 137,159; BRUCE HURWITZ, STATE LIABILITY FOR OUTER SPACE ACTIVITIES 22(1992).
193 *Compromis*, ¶ 8.
194 CARL Q CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 117 (1982).
195 OST, art. III; Carl Q. Christol, *The Legal Common Heritage of Mankind: Capturing an Illusive Concept and Applying it to the World Needs*, *in* PROCEEDINGS OF THE 18TH COLLOQUIUM ON THE LAW OF OUTER SPACE 48 (1976).
196 BIN CHENG, GENERAL PRINCIPLES OF LAW AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS 218 (1953).

result.[197] Further, 'Property' is not confined to tangible assets and extends to any right which can be subject to a commercial transaction.[198]
In the present case, EMI caused damage to the "property" of Akera as it interfered with the access to remote sensing data thereby causing damage to its utility with respect to the PNT signals. The damage to the UAV was caused due to loss of the PNT signal and consequentially there was loss caused to Akeran property and personnel. Even if this court were to adopt a requirement based on foreseeability and avoidability of risk,[199] Mheni would still be liable for the damage.

B. Additionally, Mheni is internationally liable under Article VII of the Outer Space Treaty

The Liability Convention states that its provisions do not affect other agreements in force.[200] In the event of this court holding that Akera is precluded from claiming damages under the Liability Convention. Mheni can be held liable for "fault liability" under the OST. Article VII of the OST provides for international liability of a launching state when the space object of a launching State damages the interests of another State Party to the Treaty "on the Earth, in air space or in outer space". [201]

C. Mheni is liable for the loss of property and life under general International Law

Additionally, Akera is entitled to claim damages under general International law wherein a State is at fault for damages caused to another state if it fails to carry out an international obligation.[202] In the *Chorzow Factory Case*, the PCIJ ordained three elements necessary to prove fault in international law: (1) a legal obligation imputable to a state, (2) a breach of the obligation by that State; and (3) a discernible link between the illicit act and the harm suffered.[203] Each of these applies to Mheni, making it liable for the damage caused.

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197 MALCOLM N. SHAW, INTERNATIONAL LAW 542 (1997).
198 Amoco Int'l Fin. Corp. v. Iran, Iran-U.S. Cl. Trib. Rep. 189 (1987) ¶ 108; Shufeldt Claim (U.S. v. Guat.), 2 RIAA 1083, 1097 (Perm. Ct. Arb. 1930).
199 Overseas Tankship (U.K.), Ltd.v. Miller Steamship Co. Pty. Ltd., (1966) 2 All E.R. 709 (Privy Council); Marshall v. Nugent, 222 F.2d 604 (5th Cir. 1955); Jay Ginsburg, *The High Frontier: Tort Claims and Liability for Damages Caused by Man-Made Space Objects*, 12 SUFFOLK TRANSNAT'L L. L.J. 515 (1989); Administrative Decision No II (*U.S. v. Ger.)*, 7 RIAA 23, 29-30 (1923).
200 Liability Convention, art. XXIII.
201 OST, art. VII.
202 Corfu Channel (UK v. Albania) (Assessment of the amount of compensation due from the People's Republic of Albania to the United Kingdom of Great Britain and Northern Ireland) 1949 I.C.J. 244-251(Dec. 15).
203 Chorzow Factory, 29.

The *Trail Smelter Arbitration* established that every State has a duty not to cause damage to the property of other States.[204] The violation of this duty is a wrongful act.[205] If a wrongful act is attributable to the State from which claim is sought[206] that State[207] is under an obligation to make reparation.[208] Thus, the act of interfering with the SEANAV satellite system is attributable to Mheni who is under an obligation to make reparations for the damage as there is a discernible link between the illicit activity and the harm suffered. This court has found monetary damages to be an appropriate remedy where there has been a breach of International law.[209]

Submission to the Court

For the foregoing reasons, the Akeran Federation, Applicant, respectfully requests the Court to adjudge and declare that:

1. Mheni is liable under international law for the harmful EMI preventing access to the SEANAV satellite PNT signals.
2. Akera acted in conformity with international law by disabling the X-12A satellite.
3. Mheni is liable to Akera for the loss of the unmanned aerial vehicle, the damage to the military facility, and the deaths of two Akeran military personnel.

Respectfully submitted on behalf of the Applicant,
Agents for the Applicant.

204 Trail Smelter Arbitration (U.S. v. Canada) 1938/1941, R.I.A.A. 1905.
205 BIN CHENG, GENERAL PRINCIPLES OF LAW AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS 436 (1953).
206 *Id.* at 180.
207 Articles on State Responsibility, at art. 1.
208 *Id.*
209 Corfu Channel, at 14, 23.

Memorial for the Respondent, The Commonwealth of Mheni

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Argument

I. Mheni Is Not Liable under International Law for Any Electromagnetic Interference Preventing Access to the SEANAV Signal.

The Outer Space Treaty ("OST") provides that a "State Party to the Treaty that launches…an object into outer space…is internationally liable for damage to another State Party to the Treaty…by such object or its component parts on the Earth, in air space or in outer space…."[1] The Liability Convention ("LC") clarifies this provision of the OST,[2] establishing fault-based liability for damage caused by space objects in outer space[3] and absolute liability for damage caused by space objects to aircraft in flight or collisions on the surface of the Earth.[4] Moreover, as established in *Factory at Chorzów*, international liability is premised upon the breach of an international obligation and a direct causal link between the breach and a recoverable harm.[5] Thus, regardless of which standard of the LC this Court applies, it must find an uninterrupted causal chain between the alleged wrongdoing by Mheni and a recoverable harm to Akera. Because Mheni's actions are not the direct cause of the inaccessibility of the SEANAV signal and because the damage alleged by Akera is not a recoverable harm under international space law, Mheni is not liable.

A. Mehni Is Not Liable for the Inaccessibility of the SEANAV Signal Because Akera's Bad Faith Breach of its International Obligations Was the Direct Cause of the Inaccessibility.

Akera's failure to properly report interference in accordance with the ITU's Radio Regulations ("ITU-RR") led to the inaccessibility of the SEANAV signal. This failure also constitutes a breach of Akera's duty of international cooperation under various treaties and customary international law.[6] Because Akera's bad faith breach of several international obligations significantly

1 OST art. VII.
2 *See* LC pmbl.
3 LC art. III.
4 LC art. II.
5 *Factory at Chorzów* (Ger. v. Pol.) 1928 P.C.I.J. (ser. A) No. 17 at 37 (Sept. 13); *see also* Corfu Channel (U.K. v. Alb.), 1949 I.C.J. at 4 (Apr. 9); *Trail Smelter Arbitration* (U.S. v. Can.), 3 R.I.A.A. 1911 (U.S.-Can. Arb. Trib. 1941).
6 Customary international law "derives from the practice of states and is accepted by them as legally binding." BLACK'S LAW DICTIONARY 892 (9th ed. 2009).

contributed to the inaccessibility of the signal, Mheni is not the direct cause and thus should not be held liable.

1. Akera's Failure to Properly and Fully Report the Interference It was Experiencing Breached the ITU's Radio Regulations and Contributed to the Inaccessibility of the Signal.

Akera breached its ITU-RR obligations by failing to report crucial technical data regarding the interference it experienced to Mheni, electing instead to rely on the uncorroborated and dubious[7] conjecture of its own analysts to brazenly accuse Mheni of perpetrating an attack with a sophisticated, space-based weapon. Without this critical data from Akera, Mheni was unable, and in fact had no duty, to investigate and assuming arguendo that the X-12A was the source of the EMI—eliminate the interference. Thus, Sain Communications' actions—and thereby Mheni's actions[8]—were not the direct cause of the inaccessibility of the SEANAV signal.

a. The ITU's Radio Regulations Require Member States Experiencing Interference to Report Full Particulars of the Interference to the Alleged Interfering State.

Under the ITU-RR, a state is obligated to report "full particulars" of and "all possible information" relating to any interference it experiences to the alleged interfering state.[9] Reporting full particulars of the interference allows the alleged interfering state to appropriately investigate and, if responsible, correct or eliminate the interference.[10] These full particulars are explicitly laid out in Appendix 10 of the ITU-RR and include—for both the alleged interfering station and the station experiencing interference but are not limited to, the name or call sign and location of the station, the frequency measured, the class of emission, the measured field strength and power-flux density, and the estimated or measured bandwidth of the signal.[11]

Unilateral conjecture cannot suffice to require a state to shut off its satellite or expend resources to investigate alleged interference. Such a requirement would contravene the ITU's most fundamental purpose of equitable access to the

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7 Mheni certainly had reason to doubt Akera's unsupported claims—the two states are long-time rivals, *Compromis* para. 1., and Akera had taken military action to improperly lay claim over the Langerhans Islands to exploit its oil and gas resources and bar Mheni from doing the same, *See compromis* paras. 5, 6.

8 Mheni concedes that it is internationally responsible for the outer space activities of its nationals, i.e. Sain Communications, under Article VI of the Outer Space Treaty. Any argument to the contrary finds little, if any, support in international space law, and Mheni does not wish to waste this Court's time with such frivolous arguments when much more serious issues are present in this case.

9 *See* ITU-RR arts. 15.27, 15.31, & 15.34.

10 *See* ITU-RR, app. 10 at note & art. 15.34.

11 ITU-RR app. 10.

limited radio spectrum, particularly where methods for determining the specific technical data relevant to interference are readily available.[12] Although states are required to cooperate in investigating and eliminating interference[13] with "the utmost goodwill and mutual assistance,"[14] the responsibility for initiating this investigation and seeking cooperation with other states rests upon the party alleging interference.[15] If claims of interference that are not corroborated with empirical data are to be allowed, states may be able to inhibit rival states' right of equitable access to radio spectrum resources simply by making false interference claims, just as Akera attempted to do to Mheni here.

Failure to properly report interference severely restricts the alleged interfering state's ability to appropriately investigate and, if necessary, eliminate the interference because of its various possible causes.[16] For example, interference may derive from deep-space or local solar radiation, or could be caused by "out of band" emissions or simultaneous broadcasts on the same frequency.[17] Without the technical information detailed in Appendix 10 of the ITU-RR—even something as simple as the call sign of the interfering signal—the alleged interfering state cannot appropriately investigate the alleged interference[18] or determine how to remedy such interference.[19] If the source of the interference cannot be determined to be one over which the alleged interfering state has

12 *See* ITU-RR art. 16.

13 ITU-RR art. 15.25 ("Administrations shall cooperate in the detection and elimination of harmful interference, employing where appropriate the facilities described in Article **16** and the procedures detailed in this Section.").

14 ITU-RR art. 15.22.

15 *See* ITU-RR art. 15.32.

16 Although Akera eventually sought redress for its problems through the ITU, *see Compromis* para. 12, this was too little, too late to suffice as notice as the damage had already occurred.

17 *See* J.J. Engelbrecht, *Methods to Measure and Limit Electromagnetic Interference, with Reference to Power Systems and Satellite Earth Stations* (Nov. 2004) (unpublished thesis, Rand Afrikaans University) *available at* https://ujdigispace.uj.ac.za/handle/10210/2163; Ben Ba, *Harmful Interference and Infringements of the Radio Regulations*, Presentation to the ITU Regional Radiocommunication Seminar for Africa 2013, *available at* http://www.itu.int/en/ITU-R/terrestrial/workshops/RRS-13-Africa/Documents/Harmful%20Interference.pdf.

18 *See* ITU-RR app. 10 at note ("[S]ufficient information *shall be provided* to the administration receiving the report, *so that an appropriate investigation* can be conducted.") (emphasis added).

19 For example, if the cause of the interference is out of band emissions, this may be corrected by reducing signal strength, properly placing directional antennas, or a variety of other methods. On the other hand, if the interference is the result of simultaneous broadcasts on the same frequency, the solution may be that of frequency shifting, alternating broadcasts, or a variety of other solutions. There are also many EMI shielding and filtering techniques that may be employed with the proper technical data. *See* Engelbrecht, *supra* note 17.

jurisdiction and control, no duty—and, in fact, no ability—to take remedial action exists.

b. Akera's Breach of Its Reporting Obligations Under the ITU's Radio Regulations Contributed to the Inaccessibility of the SEANAV Signal.

Akera did not properly report the interference it experienced to Mheni, and thus significantly contributed to the inaccessibility of the SEANAV signal. The compromis does not indicate that Akera provided to Mheni any of the technical data listed in Appendix 10 of the ITU-RR—not even something as simple as the a call sign of the interfering signal—which would have allowed Mheni to appropriately investigate the interference and corroborate Akera's claim.[20] Instead Akera held a press conference after news broke of the crash of its UAV[21] claiming that the crash was caused by EMI from the X-12A based on Akera's analysts' conclusion that it had not experienced interference prior to the launch of the X-12 system.[22] Akera did not announce that the interference with the SEANAV signal coincided with overflights of the X-12A, that only SEA-U receivers within the communications footprint of the X-12A were affected, or that other systems were affected when the X-12 system came online.[23] Although this circumstantial evidence now available *might* support a conclusion that the X-12A was the source of the EMI, it is not clear from the compromis that Mheni was aware of these coincidences at the time.[24] Moreover, Mheni had no reason to be aware of any interference as it was accessing the SEANAV signal without incident using its own M-SUE tuners,[25] and had properly registered the X-12A's frequency with the ITU without objection from any state.[26] Furthermore, Akera did not directly communicate the interference to Mheni until it had *completely* lost access to the SEANAV signal, at which time it issued a demarche *demanding* that Mheni immediately cease transmissions from the X-12A.[27] This demarche did not, however, provide empirical data or any additional support for Akera's allegations.[28]

Akera's demand that Mheni cease operation of the X-12A based solely on uncorroborated allegations is unreasonable, and requiring such action would contravene two of the most important goals of the ITU: international cooperation[29] and equitable access to frequencies and orbits.[30] In addition,

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20 *See* ITU-RR app. 10.

21 *See id.* para 8. The time between the incident and the press conference was at least as long as necessary for the magazine article to be researched, written, and published.

22 *See id.*

23 *See id.*

24 *See id.* para. 8.

25 *See id.* para. 11.

26 *See clarifications* para. 9.

27 *Compromis* para. 10.

28 *See id.*

29 ITU Const. pmbl. & art. 1.

such a compulsion would violate ITU-RR provisions regarding processes for the resolution of interference through compromise and cooperation.[31] Such a requirement would be particularly troublesome in relationships between neighboring states with a history of rivalry, competition, and continuing disputes over economic zones, such as Akera and Mheni.[32] Permitting Akera's unilateral, uncorroborated conjecture to satisfy its ITU-RR reporting obligations would have at least two negative consequences contradictory to the purposes of the ITU. First, it would allow Akera to avoid its duty of international cooperation and vilify long-time rival Mheni with unsupported allegations of sophisticated, space-based attacks. Second, such a requirement would force Mheni to forfeit its right to equitable access and use of a particular frequency or orbit without concrete evidence.

Assuming arguendo that the X-12A was the source of the EMI, Akera's failure to report critical data related to the interference led Mheni to conclude that there "was no proof of a direct connection between the malfunctioning of the Akeran systems and devices and the transmissions of the X-12 satellites."[33] If the X-12A was indeed the cause of the EMI, proper and timely reporting of the necessary technical data by Akera would have allowed Mheni to conduct an appropriate investigation and remedy the interference, thereby preventing the complete inaccessibility of the SEANAV signal. Because Akera significantly contributed to the ongoing interference it experienced, Mheni's actions were not the direct cause of the inaccessibility of the SEANAV signal.

2. Akera's Breach of Its Duty of International Cooperation Contributed to the Inaccessibility of the SEANAV Signal.

Akera's actions also constitute a breach of its duty of international cooperation[34] under various treaties and customary international law. As Judge Manfred Lachs noted, international cooperation is a fundamental principle of international law that necessarily falls within the realm of customary international law because "[t]he very notion of law-making in international relations implies the co-operation of the states."[35] This Court also recognized the importance of international cooperation in *Nuclear*

30 ITU Const. art. 44.

31 ITU-RR art. 15.23 ("In the settlement of these problems, due consideration shall be given to all factors involved, including the relevant technical and operating factors, such as: adjustment of frequencies, characteristics of transmitting and receiving antennas, time sharing, change of channels within multichannel transmissions.").

32 *Compromis* para. 1.

33 *Id.* para. 11.

34 International cooperation is "the obligation of States to cooperate with each other…." Chukeat Noichim, *International Liability for Damage Caused by Space Objects*, 74 Am. J. Int'l L. 315, 316 (1980).

35 *See* MANFRED LACHS, THE LAW OF OUTER SPACE 27 (1972).

Tests.[36] Akera's duty of international cooperation is even more concrete in the present case as it is a specifically enumerated purpose of the U.N. Charter,[37] the OST,[38] and the ITU.[39]

Akera breached its duty of international cooperation when it failed to properly report the interference and, instead, made unsupported allegations that Mheni had willfully violated international law by means of an attack on Akera. Reporting of full data relating to satellite interference between two states so that potential interference may be jointly and peaceably investigated and corrected certainly falls within the ambit of international cooperation. Akera chose, however, to make demands of Mheni and to internationally denounce Mheni as a bad actor without providing any evidence supporting its allegations. This behavior cannot be considered international cooperation under any meaning of the term and points to bad faith on the part of Akera.

3. Akera Acted in Bad Faith Breaching Its International Obligations Thereby Barring It From Recovery.

Akera's bad faith actions bring it before this Court with unclean hands, thus barring Akera from recovery. Breach of international law by a state may act as a bar to recovery, particular where such breach is committed in bad faith.[40] Furthermore, it is well-established in both common law and civil jurisprudence that contribution by victims to the cause of their own alleged harm can act as a bar to recovery,[41] and this principle has been repeatedly recognized by international tribunals.[42] Under the principle of *pacta sunt servanda*, a State Party to any treaty is required to act in good faith to fulfill the obligations of that

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36 *See Nuclear Tests* (N.Z. v. Fr.), 1973 I.C.J. 457, para. 46 (Dec. 20) ("One of the basic principles governing the creation and performance of legal obligations, whatever their source, is the principle of good faith. Trust and confidence are inherent in international co-operation, in particular in an age when this co-operation in many fields is becoming increasingly essential.").

37 U.N. CHARTER, art. 1, para. 3

38 *See* OST pmbl. & art. IX; *see also* Aldo Armando Cocca, *Prospective Space Law*, 26 J. Space L. 51, 54 (1998) (explaining that international cooperation is an obligation under space law).

39 ITU Const. pmbl. & art. 1.

40 Stephen M. Schwebel, *Clean Hands Principle*, MAX PLANCK ENCYCLOPEDIA OF INTERNATIONAL LAW, http://opil.ouplaw.com.proxy.lib.fsu.edu/view/10.1093/law:epil/9780199231690/law-9780199231690-e18?rskey=zWbTRw&result=1&prd=EPIL (quoting the lectures of Sir Gerald Fitzmaurice to the Hague Academy of International law in 1957).

41 David J. Bederman, *Contributory Fault and State Responsibility*, 30 Va. J. Int'l L. 335, 337 (1990).

42 *See, e.g., Diversion of Water from Meuse* (Neth. v. Belg.), 1937 P.C.I.J. (ser. A/B) No. 70 (June 28); *Home Frontier and Foreign Missionary Society of the United Brethren in Christ* (U.S. v. Gr. Brit.), 6 R.I.A.A. 42 (Dec. 18, 1920); *Yukon Lumber Case* (Gr. Brit. V. U.S.), 6 R.I.A.A. 17 (1913).

treaty.[43] Although prescribed in the Vienna Convention on the Law of Treaties, this principle is also recognized as customary international law.[44] This Court may make determinations based on customary international law,[45] and international tribunals have previously recognized the application of these principles to bar recovery.[46]

Akera has acted in bad faith throughout the time period described in the compromis. First, Akera's military improperly and aggressively attempted to claim territory within the overlapping economic zones of Akera and Mheni—the Langerhans Islands—and bar Mheni from sharing in the rich oil and gas resources of the region.[47] Second, if Akera's true purpose was to seek Mheni's cooperation to expediently resolve the interference, it should have promptly reported full particulars of the interference directly to Mheni.[48] Instead, Akera did not report the interference it experienced until *after* the information was made public by *Aviation Daily & Space Operations*.[49] At that time, Akera's President publicly accused Mheni of violating Akera's territorial integrity and national security, but did not disclose any evidence in support of this allegation other than its analysts' conclusion that the interference had not occurred prior to the launch of the X-12 system.[50] No direct communication was made with Mheni until later when the interference had increased to the extent that Akera was unable to access the oil and gas in and around the Langerhans Islands.[51] Finally, Akera made its push to vilify Mheni[52] through various international organizations; however, Akera's unsubstantiated allegations based on circumstantial evidence were evidently insufficient to persuade the international community of Mheni's responsibility.[53] Akera then decided to further breach its international obligations by taking matters into its own hands.[54] Thus, Akera comes before this Court with unclean hands because it breached its international obligations in bad faith to vilify Mheni—perhaps to garner

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43 Vienna Convention on the Law of Treaties, art. 26 (May 23, 1969), 1155 U.N.T.S. 331.

44 *See Gabčíkovo–Nagymaros Project* (Hung. v. Slovk.), 1997 I.C.J. 7 (Sept. 25).

45 STATUTE OF THE INTERNATIONAL COURT OF JUSTICE, art. 38(1)(c).

46 *Diversion of Water from Meuse*, *supra* note 42 at 77 (individual opinion of M. Hudson).

47 *Compromis* para. 6.

48 *See supra* part I.A.1.a.

49 *Compromis* para. 8.

50 *Id.*

51 *See id.* paras. 9 & 10.

52 Akera's attempt to portray Mheni as an aggressor with unsupported allegations, perhaps hoping to set back Mheni's efforts to mutually occupy and exploit the Langerhans, is much like Japan's likening of China to "Voldemort" from the children's book series HARRY POTTER in the dispute over the Senkaku Islands. *See "Voldemort in the Region": China, Japan blast each other Harry Potter style*, RT.COM. (Jan. 7, 2014, 4:07 AM), http://rt.com/news/china-japan-harry-potter-voldemort-255.

53 *Id.* para. 13

54 *See infra* part II.

support for its invalid claim of the Langerhans Islands in order to bar Mheni from sharing in the oil and gas resources[55]—ultimately contributing to the inaccessibility of the SEANAV signal. Put simply, Akera is a bad actor who sought to improve its territorial reach and economic status while simultaneously hindering those of its long-time rival Mheni. Instead, Akera's bad faith breaches of international law substantially contributed to the harm for which it now seeks relief. For this reason, too, Akera's claim against Mheni should be denied.

B. Mheni Is Not Liable for the Inaccessibility of the SEANAV Signal Because There IS No Basis for Liability Under the Relevant Treaties of Customary International Law.

The LC and the OST provide liability only for physical damage due to a collision with a space object. The LC and the OST do not provide a basis for liability here because there has been no collision with a Mhenian space object and no physical damage to the SEANAV signal or the broadcasting payloads. Additionally, the ITU does not establish a liability scheme, but instead seeks joint resolution of alleged harmful interference through international cooperation and mutual assistance. Therefore, inaccessibility of the SEANAV signal is not a recoverable harm under international law and accordingly Mheni cannot be held liable.

1. There is no Basis for Liability Under the Outer Space Treaty and Liability Convention Because the Inaccessibility of the SEANAV Signal Was Not Caused by a Collision with a Mehnian Space Object.

The OST and the LC impose liability only for physical damage from direct collisions with space objects. The OST provides that a "State Party to the Treaty that launches…an object into outer space…is internationally liable for damage to another State Party to the Treaty…by such object or its component parts on the Earth, in air space or in outer space…."[56] This provision has been repeatedly recognized as imposing liability only for physical damage from direct collisions with a space object during launch, orbit, or re-entry as those were the only types of damage contemplated by the drafters of the treaty.[57] The LC clarifies Article VII of the OST,[58] establishing

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55 *See compromis* paras. 5, 6.

56 OST art. VII.

57 *E.g.*, Carl Q. Christol, *International Liability for Damage Caused by Space Objects*, 74 Am. J. Int'l L. 346, 355 (1974)("Although the acceptance in Article 7 of the principle of international liability for damage caused by space objects had wide-ranging legal consequences, its focus was quite narrow. It looked to physical harm of the kind that would result from collisions with space objects or aircraft, or from impacts on individuals or their property on the earth. It focused on nonelectronic and physical injury and did not take into account such possibilities as environmental harm or events producing pollution in outer space."); Stephen Gorove, *Damage and the*

fault-based liability for collisions occurring in outer space[59] and absolute liability for collisions with aircraft in flight or collisions on the surface of the Earth.[60] The LC should not be read, however, to expand the scope of liability, because there has been no significant change in the language regarding causation from that used in Article VII of the OST.[61] As Stephen Gorove notes, use of the word "by" in these provisions implies "that the damage must be caused directly by the space object in the sense of physical damage or impact."[62] Moreover, the LC defines damage as "loss of life, personal injury [or] loss of or damage to property,"[63] and thus does not cover non-physical damage. Thus, liability should not include non-physical damage or damage that is not the result of a collision with a space object.

The inaccessibility of the SEANAV signal was not the result of a collision with a Mhenian space object. In fact, there was no collision of a Mhenian space object with an Akeran space object,[64] with an Akeran aircraft in flight, or in Akeran territory. Instead Akera alleged that the inaccessibility of the SEANAV signal was due to EMI that it *believed* originated from the X-12A satellite.[65] Furthermore, the inaccessibility of the SEANAV signal is not a physical damage as there is no evidence of loss of or damage to the hosted payloads broadcasting the signal—there was merely an interruption of the signal that no longer exists.

Liability Convention, PROCEEDINGS OF THE TWENTY-FIRST COLLOQUIUM ON THE LAW OF OUTER SPACE 97, 98 (1978); SENATE COMM. ON FOREIGN RELATIONS, TREATY ON OUTER SPACE, S. EXEC. REP. NO. 8, 90th Cong., 1st Sess. 5 (1967) (stating that "any reasonable interpretation of [Article VII of the OST] would mean physical damage" and explaining that the OST focuses specifically on "nonelectronic and physical injury" as the result of collisions).

58 *See* LC pmbl.

59 LC art. III.

60 LC art. II.

61 *Cf.* OST art VII ("[D]amage to another State Party . . . by [its space] object . . . .") *with* LC art. II ("[D]amage caused by its space object….") & art. III ("[D]amage being caused . . . by a space object . . . . ").

62 *See also* Gorove, *supra* note 57 at 98; *See also* Muhamed Mustaque, *Legal Aspects Relating to Satellite Navigation in Air Traffic Management with Specific Reference to Gagan in India*, IAC Doc., IAC-07-E6.4.04 (2007) (explaining that the LC does not apply to issues resulting from signals between satellites).

63 LC art. I(a).

64 Had a collision with a Mhenian space object occurred, there is some doubt that the SEANAV hosted payloads should be considered space objects as they are not necessarily component parts of the satellites upon which they are carried. *See* Hamid Kazemi et al., *Towards a New International Space Liability Regime Alongside the Liability Convention 1971*, IAC Doc. IAC-12, E7, 2, 13 x14120 (2012).

65 *See compromis* para. 8.

2. The ITU Does Not Establish a Liability Regime.

The ITU Constitution and ITU-RR do not impose liability for harmful interference with the radio signal of another State; in fact, the ITU does not impose liability or sanctions for any alleged infraction of its provisions.[66] Instead, the ITU requires states to remedy interference through a process of proper reporting, investigation, and correction of the interference through international cooperation and mutual assistance.[67] If these processes fail, the ITU aspires to settle these issues through arbitration and other dispute resolution techniques without specifically imposing liability.[68] Thus, Akera's claim for damage does not fall within the scope of recoverable damage contemplated in international space law.

II. Akera Violated International Law By Disabling the X-12A Satellite Resulting In Its Destruction.

Akera's act of disabling and destroying the X-12A violated international law, regardless of intent. Because no justification exists for this act under international law, Akera cannot escape responsibility for its breach of international law.

A. Akera Breached International Law When It Disabled The X-12A Satellite.

Akera's disabling the X-12A resulting in its destruction violates multiple international obligations. This is true regardless of whether or not the disabling and destruction of the X-12A was a deliberate act by Akera.

1. Akera's Deliberate Disabling of the X-12A Resulting in Its Destruction Violated the UN the ITU Constitution, the Outer Space Treaty, and Customary International Law.

The prohibition on the use of force and the obligation of international cooperation are two of the most fundamental principles of international law; both are enumerated purposes of the U.N. Charter.[69] These principles are even more definite in the context of the operation of satellites in outer

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66 Maria Buzdugan, *Recent Challenges Facing the Management of Radio Frequencies and Orbital Resources Used by Satellites*, IAC Doc., IAC-10.E7.5.3 at 5 (2010) ("The important aspect to note is that the ITU does not, and has no authority to, impose sanctions or otherwise enforce its Radio Regulations or other applicable rules and cannot exercise any real control over how a member State uses its orbit/spectrum assignment.").

67 *See* ITU-RR art. 15.

68 *See* ITU Const. art 41.

69 U.N. CHARTER art. 1, para. 3 (international cooperation) & art. 2, para. 4 (prohibition on the use of force).

space[70]: the OST requires states to use space solely for peaceful purposes,[71] and the ITU Constitution and the OST specifically require international cooperation.[72] Additionally, Akera's deliberate destruction of the X-12A violates the ITU's prohibition on harmful interference.[73]

Akera's act of disabling the X-12A satellite was deliberate in that such a result was its intent or, at the very least, because Akera took action which it had strong reason to believe would disable the X-12A. Akera knew that the X-12A would receive the new SEANAV signal because of Mheni's use of M-SUE tuners.[74] Instead of protesting Mheni's use of M-SUE tuners to access the signal, Akera used this information to its advantage by designing the new SEANAV signal to counteract the signal that Akera believed to originate from the X-12A.[75] Akera then waited until its new Klondike satellite "orbited in near conjunction with the X-12A" to broadcast the new signal, causing the X-12A satellite to malfunction and fall out of orbit.[76] Akera's unsupported claims that the X-12A was a threat to Akeran national security interests and its demand that Mheni cease operation of the X-12A prior to launching the new system[77] further evidences Akera's motive to deliberately disable the X-12A.

Akera's deliberate act constitutes a use of force in violation of the UN Charter,[78] as well as the OST's requirement to use outer space solely for peaceful purposes and the ITU's prohibition on harmful interference.[79] This Court and other international tribunals have also condemned the extraterritorial use of force;[80] and such an intentionally injurious act plainly violates the customary international law duty of states to avoid causing harm to other states as described in *Pulp Mills*.[81] Furthermore, Akera's deliberate

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70 *See supra* part I.A.2

71 OST, pmbl. & art. IV.

72 ITU Const. pmbl. & art. 1; OST pmbl. & arts. III and IX.

73 ITU Const. art. 45 & ITU-RR art. 15.

74 *Compromis* para. 11.

75 *See* Tony Capaccio and Jeff Bliss, *Chinese Military Suspected in Hacker Attacks on U.S. Satellites*, BLOOMBERG NEWS (Oct. 27, 2011, 12:01 AM), http://www.bloomberg.com/news/2011-10-27/chinese-military-suspected-in-hacker-attacks-on-u-s-satellites.html.

76 *Compromis* para. 16.

77 *Id.* paras. 10, 14.

78 U.N. CHARTER art. 2, para. 4.

79 *See* P.J. Blount, *Limits on Space Weapons: Incorporating the Law of War into the* Corpus Juris Spatialis, IAC Doc., IAC-08-E8.3.5 at 1 (2008).

80 *See Request for Interpretation of the Judgment of 15 June 1962 in the Case Concerning the Temple of Preah Vihear* (Cambodia v. Thai.), Order, 2011 I.C.J. (July 18), *available at* http://www.icj-cij.org/docket/files/151/16564.pdf; *Delimitation of Maritime Boundary between Guyana and Suriname* (Guy. v. Surin.), Award (Perm. Ct. Arb. 2007), *available at* http://www.pca-cpa.org/upload/files/GuyanaSuriname%20Award.pdf.

81 *Pulp Mills on the River Uruguay*, (Arg. v. Uru.), 2010 I.C.J. 1 (Apr. 20) [hereinafter *Pulp Mills*].

disabling of the X-12A breached its obligation of international cooperation. The "[u]nilateral breach of an international obligation in response to the breach of another international obligation is a crude and unhappy way of responding to unlawful conduct".[82] This is doubly true when the breach of international law is a deliberate attack upon a rival state in response to *perceived* wrongdoing, such as in the present case. That is international retaliation, not cooperation.

2. Even if Unintentional, Akera's Disabling of the X-12A Satellite Violated Multiple International Obligations.

In disabling the X-12A, Akera breached its duties in regard to harmful interference as a party to the ITU and the OST. Each of these wrongdoings further constitutes a breach of Akera's duty of international cooperation. Thus, Akera has violated international law in a way that caused the destruction of the X-12A.

a. Akera's Disabling of the X-12A Resulting in Its Immediate, Irreparable Destruction Breached the ITU's Prohibition of Harmful Interference.

Akera violated the ITU's prohibition on harmful interference when it disabled the X-12A. Although incidental interference with the satellite signal of another state is not *per se* illegal, that interference becomes illegal if the interfering state's actions render the processes for resolution of interference ineffective.[83] Such is the case here; Akera's new SEANAV signal disabled the X-12A resulting in its irreparable and nearly immediate destruction.[84] Because the damage to Mheni was immediate and irreparable, Akera rendered the ITU processes for resolution of interference useless. Thus, even if unintentional, Akera's disabling of the X-12A constitutes harmful interference in violation of the ITU's Constitution[85] and Radio Regulations.[86]

b. Akera's Disabling of the X-12A Breached Its Obligation of International Consultation Under Article IX of the Outer Space Treaty.

The OST recognizes a duty of due diligence, much like that articulated in *Pulp Mills*,[87] by requiring its state parties to conduct international consultations before undertaking activities that could foreseeably cause harmful interference with another state's outer space activities.[88] The

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82 James Crawford, *Counter-measures as Interim Measures*, 5 Eur. J. Int'l L. 65, 66 (1994).

83 *See* ITU-RR art. 15.39; *see also* ITU-RR Recommendation S.735-1 (explaining that, in some circumstances, certain levels of interference are permissible).

84 *Compromis* para. 16.

85 ITU Const. art. 45.

86 ITU-RR art. 15.

87 *Pulp Mills*, *supra* note 81.

88 OST art. IX.

possibility of harmful interference with the Mhenian space activities was foreseeable—Akera launched satellites to broadcast a stronger signal encoded with information specifically intended to counteract a signal it *believed* to originate from the X-12A. Further, Akera had actual knowledge that the X-12A would receive the new signal,[89] and did not broadcast the new signal until its satellite "orbited in near conjunction with the X-12A . . . ."[90]
Although Akera made an announcement regarding the new SEANAV signal, this was not done in a way that would allow any sort of meaningful consultation with the international community. There is no evidence that Akera consulted directly with Mheni, or any other state, in regard to the new SEANAV signal prior to launching the satellites. Instead Akera announced the new SEANAV-2 signal *at the time* of the launch of the satellites, stating that the signal "would not be as vulnerable to EMI as was the original SEANAV system," but not disclosing that the signal was designed to counteract and neutralize the EMI it believed to emanate from the X-12A.[91] Such an untimely and insufficient disclosure by Akera should not satisfy the substance of its obligation of international consultations because it does not allow for meaningful consultation with and between potentially affected states, even if such an announcement is a proper form of international consultations under Article IX of the OST.

c. Akera's Disabling of the X-12A Satellite Breached Its Duty of International Cooperation.
As discussed in depth *supra*, the duty of international cooperation is a foundational principle of all international law, made particularly concrete in the context of operating satellites in outer space.[92] Akera's self-help in disabling the X-12A breaches its duty of international cooperation because it did so without the approval of the international community rather than resolving the alleged interference through proper ITU procedures. Akera also breached this duty by conducting an outer space activity which it had reason to believe would cause harmful interference with Mheni's activities without carrying out appropriate international consultations.

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89 See *compromis* para. 11. Although Mheni's tuners were unauthorized, there is no evidence that use of the M-SUE tuners constitutes a violation of international laws applicable between Akera and Mheni. As noted in the *Lotus Case*, states enjoy "a wide measure of discretion which is only limited...by prohibitive rules." *The Case of the S.S. Lotus* (Fr. v. Turk), 1927 P.C.I.J. (ser. A) No. 10 at 18-19 (Sept. 7).
90 *Compromis* para. 16.
91 *See id.* para. 14.
92 *Supra* part I.A.2.

B. Akera's Disabling and Destruction of the X-12A Cannot Be Justified Under International Law.

Although justifications exist for breaches of international law—namely self-defense, countermeasures, and the defense of necessity—none of the necessary circumstances exist in this case. Thus, Akera has no legal justification for its violation of international law.

1. Akera's Destruction of the X-12A Cannot Be Justified as Self-Defense Because It Was Not in Response to an Attack by Mheni.

Akera's use of force in destroying the X-12A must conform to Article 51 of the U.N. Charter to be justifiable as self-defense.[93] Thus, Akera could justify its deliberate destruction of the X-12A only as a response to an "armed attack" by Mheni.[94] However, no armed attack—and, in fact, no attack whatsoever—has been committed by Mheni.[95] Akera's actions therefore cannot be justified as self-defense.

2. Akera's Destruction of the X-12A Cannot Be Justified as a Countermeasure Because It Was Not in Response to Proven Unlawful Conduct by Mheni.

Akera's deliberate destruction of the X-12A is not a lawful countermeasure. Although this Court has recognized the lawfulness of countermeasures,[96] these are subject to the parameters of the U.N. General Assembly Resolution on Responsibility of States for Internationally Wrongful Acts.[97] A countermeasure, then, is an extraordinary remedy to be used only in the narrowest of circumstances and must be in response to *actual* unlawful conduct—not uncorroborated belief of unlawful conduct.[98] Furthermore, this resolution prohibits the use of force as a countermeasure.[99] Akera's use of force to destroy the X-12A negates the countermeasure justification.[100]

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93 U.N. CHARTER art. 51; *see also* Resolution on Responsibility of States for Internationally Wrongful Acts, art. 21, G.A. Res. 56/83, U.N. Doc. A/RES/56/83 (Jan 28., 2002) [hereinafter Wrongful Acts Resolution].

94 *See* U.N. CHARTER, art. 51.

95 *See supra* part I.

96 *Gabčíkovo–Nagymaros Project*, *supra* note 44 (discussing the lawfulness of Czechoslovakia's countermeasure against Hungary).

97 *See id.*; *see also* David D. Caron, *The ILC Articles on State Responsibility: The Paradoxical Relationship Between Form and Authority*, 96 Am. J. Int'l L. 857, 873 (2002) (Discussing the persuasiveness of the Draft Articles in international courts and stating that "[t]he articles have already affected legal discourse, arbitral decisions, and perhaps also state practice."). For another example of the use of UNGA Resolutions in decisions of international tribunals see *Texaco/Libya Arbitration* (Texaco Overseas Petroleum Co./California Asiatic Oil Co. v. Gov't of Libya), 17 I.L.M. 1 (1978).

98 Crawford, *supra* note 82 at 66.

99 Wrongful Acts Resolution, *supra* note 93, art. 50(1)(a).

100 *Id.*

Even if not considered a use of force, however, Akera's deliberate destruction of the X-12A based on its unsubstantiated *belief* that Mheni had breached an international obligation is illegal.[101] Mere belief of wrongdoing is insufficient to justify a countermeasure, no matter how well-founded; Akera must have provided actual proof that Mheni had breached an international obligation.[102] For example, Akera should have provided even just one piece of empirical evidence—something as simple as a call sign of the interfering signal—as required by the ITU-RR to support its allegation that the X-12A was the source of the EMI[103] and should have acted in good faith to resolve the interference through cooperation and mutual assistance with Mheni.[104] Instead Akera destroyed the X-12A based upon the uncorroborated conjecture of its own analysts, without making a good faith effort to resolve the interference through cooperation with Mheni.[105] While States Parties to the ITU "reserve the right to cut off . . . private telecommunications which may appear dangerous to the security of the State,"[106] this should not allow the complete destruction of the satellites of other states without conclusive proof of wrongdoing and the inability to resolve the matter through more peaceful means. Because Akera did not conclusively establish breach of international obligations by Mheni prior to taking action, instead acting based solely on its own *belief* of wrongdoing,[107] Akera's destruction of the X-12 was not a lawful countermeasure.

3. Akera's Destruction of the X-12A Cannot Be Justified Under a Defense of Necessity Because Akera Was Not Facing Grave Peril and Because Akera Contributed to Its Own Harm.

Akera cannot articulate a defense of necessity to justify its destruction of the X-12A that would meet the high standard set out by this Court in *Gabčíkovo–Nagymaros Project*.[108] To justify a breach of international law under a defense of necessity, a state must face "grave and imminent peril,"[109] and must not contribute to the situation that the state alleges caused its necessity.[110]

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101 *See compromis* para. 8.

102 *See* Crawford, *supra* note 82 at 66 ("Counter-measures can only be taken in response to an actual breach of the law…. It is not sufficient for a State to justify unlawful conduct…by asserting a belief that this is in response to conduct which is unlawful. The conduct must actually be unlawful.").

103 *See* ITU-RR art. 15 & app. 10.

104 ITU-RR art. 15.22.

105 *See supra* part I.A.3.

106 ITU Const. art. 34(1).

107 *Supra* part I.B.3.

108 *Gabčíkovo–Nagymaros Project*, *supra* note 44 at 39-40 (holding that the necessity defense requires that states be faced with "grave and imminent peril," and the responsive conduct must be the "only means of safeguarding [its] interest…").

109 *See id.; see also* Crawford, *supra* note 82.

110 Wrongful Acts Resolution, *supra* note 93 art. 25(2)(b).

The inaccessibility of the SEANAV signal did not present grave and imminent peril—i.e., the possibility of immediate, widespread death and destruction—at the time Akera destroyed the X-12A. Instead, the danger faced by Akera from the inaccessibility of the SEANAV signal was purely economic in relation to the development and trade of oil and gas resources.[111] Moreover, because Akera contributed to the inaccessibility of the SEANAV signal,[112] it cannot point to the inaccessibility as a situation of necessity.[113]

III. Mheni Is Not Liable To Akera For The Loss Of The Unmanned Aerial Vehicle, The Damage To The Military Facility, Or The Deaths Of The Two Akeran Military Personnel.

In order for a state to be internationally liable, there must be a direct causal chain between a breach of an international obligation by that state and a recoverable harm alleged by another state.[114] Mheni cannot be liable for the alleged harm to Akera because Mheni was not the direct cause of the harm to Akera. Further, Akera has not alleged damage that is recoverable under international space law. Moreover, even if the damage alleged by Akera is recoverable and attributable to the X-12A, such damages should be reduced because Akera is a launching state and because Akera's negligence has contributed to the harm for which it seeks relief.

A. Mheni Was Not the Direct Cause of the Crash Because It Was Not the Direct Cause of the Interference with the SEANAV Signal.

As discussed in depth *supra*, Mheni was not the direct cause of the inaccessibility of the SEANAV signal because Akera failed to properly report the interference it experienced.[115] The crash of Akera's UAV stemmed from this inaccessibility as reported by *Aviation Daily & Space Operations* and verified by the Akeran government.[116] Because Mheni is not the direct cause of the inaccessibility that in turn caused the UAV crash, Mheni cannot be the direct cause of the UAV crash itself, and thus is not liable for the crash or any related damage.

B. Mheni Is Not Liable for the Damage Caused by the Crash of Akera's UAV Because Such Damage Is Not the Direct and Foreseeable Result of the Loss of Satellite Signal.

Indirect damage is generally not recoverable under international law because of its tenuous and unforeseeable nature. The body of space law does not alter this

111 *See compromis* para. 9.
112 *Supra* part I.A.
113 Wrongful Acts Resolution, *supra* note 93 art. 25(2)(b).
114 *See Factory at Chorzów*, *supra* note 5 at 37.
115 *Supra* part I.A.1.
116 *Compromis* para. 8.

bar on recovery. Therefore, even if EMI from the X-12A was the direct cause of Akera's inability to access the SEANAV, Mheni is not the direct cause of Akera's UAV crash because such a crash is not the direct and foreseeable result of EMI or the loss of satellite signal.

1. Indirect, Unforeseeable Damage Is Not Recoverable Under International Space Law.

Indirect damage "[does] not flow directly and immediately from an injurious act but that result[s] indirectly from the act,"[117] and it is generally not recoverable under international law because of its unforeseeable nature.[118] The decision to award damages should be made by evaluating the reasonable foreseeability[119] of the alleged damage within the full context and circumstances of each case. [120] In fact, this Court has explained that foreseeability of harm should be considered in assessing damages and determining whether a breach of international law has even occurred.[121] International space law does not broaden the scope of recoverable damage to include indirect damage.[122] In clarifying the scope of damage under Article VII of the OST, the drafters of the LC were hesitant to permit recovery of indirect damage because of its attenuated and unforeseeable nature, and left the issue unresolved.[123] Thus, recovery for indirect damage should be barred under the LC because its recovery is generally not permitted in international law, and the parties to the treaty have not explicitly consented to such recovery.[124]

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117 BLACK'S LAW DICTIONARY 46 (9th ed. 2009).

118 *See* Rep. of the Int'l Law Comm'n, 53rd Sess., April 23-June 1, July 2-Aug. 10, 2001, *Draft Articles on Responsibility of States for Internationally Wrongful Acts*, U.N. Doc. A/56/10; GAOR, 56th Sess., Supp. No. 10, 31, art. 31 cmt. 10 (2001); VALÉRIE KAYSER, LAUNCHING SPACE OBJECTS: ISSUES OF LIABILITY AND FUTURE PROSPECTS, 48-49 (2010) ("[I]ndirect damages are normally not recovered in international law . . . .").

119 *See,* Bin Cheng, GENERAL PRINCIPLES OF LAW AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS 244-50 (1987); Christol, *supra* note 57 at 360-62; *see also Al-Jedda v. United Kingdom*, App. No. 27021/08, Eur. Ct. H.R. 114 (2001) (expressing that the guiding principle when determining damages is "equity, which above all involves flexibility and an objective consideration of what is just, fair and reasonable in all the circumstances of the case, including not only the position of the applicant but the overall context in which the breach occurred").

120 *See* Christol, *supra* note 57 at 360-62; s*ee also North Sea Continental Shelf* (F.R.G. v. Den./F.R.G. v. Neth.), 1969 I.C.J. 3, at 53 (Feb. 20) (recognizing that relief should be granted "in accordance with equitable principles.").

121 *Military and Paramilitary Activities in and Against Nicaragua* (Nicar. v. U.S.), 1986 I.C.J. 14 (June 27) (barring recovery for unforeseeable damage).

122 CARL Q. CHRISTOL, THE MODERN INTERNATIONAL LAW OF OUTER SPACE 96 (1982) (stating that unforeseeable damage is not recoverable).

123 Christol, *supra* note 57 at 362.

124 *See Corfu Channel*, *supra* note 5 (explaining that states are bound only by consent).

2. The Damage Alleged by Akera Is Indirect Because It Is Not the Foreseeable Consequence of EMI or the Loss of a Satellite Signal.

Akera's damage is indirect because the crash of a UAV is not the direct and foreseeable consequence of EMI or the inaccessibility of a satellite signal. Akera, as a party to the ITU, is required to utilize the latest technological advances to provide necessary services in a satisfactory manner.[125] This obligation is particularly important in light of the duty of states to protect their nationals from harm,[126] and even more so when guarding against such a pervasive threat as EMI.[127] EMI has several potential causes—radiation from the sun or deep space gamma ray bursts, unintentional out-of-band emissions, overlapping signals broadcast on the same frequency, or intentional interference, also known as "jamming."[128] Thus, UAVs are constructed with certain industry-standard technology to prevent crashes due to EMI or loss of satellite signal.

Large platform UAVs,[129] such as the Predator drone,[130] utilize inertial navigation systems ("INS"), which comprise a series of accelerometers and gyroscopes to derive position and velocity information.[131] These systems do not rely on satellite service, but rather *periodically incorporate* satellite-based PNT signal to correct errors that accumulate in the systems.[132] In the event that these satellite-based signals are interrupted, technology such as Doppler radar, star sensors, or terrain correlation is used to minimize INS errors.[133] Smaller UAVs, which typically rely almost entirely on satellite-based signal instead of INS for navigation, have built-in failsafes, which direct the autopilot software to initiate a holding pattern in the event of signal interruption.[134] If the signal is not reacquired after a programmed period of time, a second failsafe in the

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125 ITU-RR pmbl. & art. 4. Although this provision specifically speaks to limiting the number of frequencies and the spectrum used, its purpose is to allow equitable access of states to these limited natural resources. *See* ITU pmbl. Industry-standard protection from EMI would allow states to limit their use of particularly frequencies and spectrums to the benefit of other states, and thus should be read to fall within this provision.

126 *See Barcelona Traction, Light and Power Co., Ltd.* (Belg. v. Spain), 1970 I.C.J. 3 (Feb.5).

127 In 2013 alone there were forty-five cases of interference reported through ITU procedures. Presentation of Ben Ba, *supra* note 17.

128 Engelbrecht, *supra* note 17.

129 Although not clear from the *Compromis*, it is likely that the Akeran UAV was a large platform UAV because of the extent of the damage caused by its crash.

130 Robert Valdes, *How the Predator UAV Works*, HOWSTUFFWORKS.COM, http://science.howstuff works.com/predator2.htm (last accessed July 20, 2014).

131 Oliver J. Woodman, *An Introduction to Inertial Navigation*, Technical Report from University of Cambridge, U-CAM-CL-TR-696, *available at* http://www.cl.cam.ac.uk/techreports/UCAM-CL-TR-696.pdf.

132 *Id.*

133 *Id.*

134 Reed Siefert Christiansen, *Design of an Autopilot for Small Unmanned Aerial Vehicles*, (Aug. 2004) (unpublished thesis, Brigham Young University), *available at* http://www.uadrones.net /academia/research/acrobat/0408.pdf.

auto-pilot system commands the UAV to safely auto-land.[135] Similar auto-land procedures have been put in place for large platform UAVs.[136] Additionally, regardless of the UAV's size, many states have adopted standards for EMI shielding and compatibility to protect this critical onboard technology from failure due to EMI.[137]

In light of this industry-standard technology for the safety of UAV flight and Akera's duty to protect its radiocommunication services using the latest technology, it is not foreseeable that inadvertent EMI or the inaccessibility of a satellite signal would cause Akera's UAV to crash. That is to say, it is unforeseeable that Akera, in protecting its own interests, would not use this industry-standard technology which should prevent such a crash. In fact, considering the pervasiveness of EMI, this Court could find that Akera was grossly negligent if it elected to fly the UAV without this technology, thereby absolving Mheni of absolute liability under Article II of the LC.[138] Examining the foreseeability of the alleged damage through a lens of fairness and equity[139] and in light of the rare recoverability of indirect damage, this Court should find that Mheni is not liable for the UAV crash or any related damage.

C. Akera's Damage Is Not Recoverable Because It Is Not the Result of a Collision with a Mhenian Space Object.

As previously discussed, the OST and LC should be construed to allow recovery only for physical damage resulting from a collision with a space object.[140] Because the ITU does not establish a liability regime, it does not expand the realm of recoverable damage in radiocommunications.[141] The damage from the crash of Akera's UAV, although physical, was not caused by a collision with a Mhenian space object. In fact, no Mhenian space object has collided with any Akeran space object in outer space or Akeran aircraft in flight, or crash-landed

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135 *Id.*

136 Thomas William Wagner, *Digital Autoland System for Unmanned Aerial Vehicles*, (May 2007) (unpublished thesis, Texas Agricultural and Mechanical University), *available at* http://repository.tamu.edu/bitstream/handle/1969.1/5960/etd-tamu-2007A-AERO-Wagner.pdf?sequence=1.

137 *See, e.g.*, MIL-STD-461, EMCINTEGRITY.COM, http://www.emcintegrity.com/military-and-aerospace/mil-std-461 (explaining MIL-STD-461, the U.S. Military Standard for EMI protection and compatibility for aircraft, including drones); Report on Civil Aircraft and Incorporated Equipment Covering the Technical Specifications and Related Conformity Assessment Procedures, Regional or International, in Relation to Electromagnetic Compatibility, Oct. 5, 2000, *available at* http://ec.europa.eu/enterprise/sectors/electrical/files/report_en.pdf (explaining European standards for EMI protection and compatibility as of the year 2000).

138 LC art. VI(1).

139 *North Sea Case*, *supra* note 120 (demonstrating this Court's practice of awarding damages in accordance with principles of fairness and equity).

140 *Supra* part I.B.1.

141 *Supra* part I.B.2.

on any part of Akeran territory. Thus, Mheni is not liable for Akera's damage under international space law.

D. Even if Akera Is Entitled to Damages, These Should Be Reduced.

Even assuming arguendo that Mheni is liable, Akera's negligence contributed to the crash of the UAV. Additionally, Akera is also liable as a joint launching state of the X-12A. Thus, any damages awarded by this Court should be reduced accordingly.

1. Akera's Negligent Construction of Its UAV Contributed to Its Crash.

As previously discussed, Akera may have been negligent in design and construction of its UAV without industry-standard safety technology, thus contributing to its crash.[142] As this Court noted in *Gabčíkovo–Nagymaros Project*, "An injured State which has failed to take the necessary measures to limit the damage sustained [is] not entitled to claim compensation for that damage which could have been avoided."[143] Thus, if this Court determines that Akera's UAV was negligently constructed, any damages awarded should be reduced accordingly.

2. As a Launching State of the X-12A, Akera Is Jointly and Severally Liable for Any Damage Attributable to the X-12A.

A launching state is one "which launches or procures the launch of a space object"[144] or one "from whose territory or facility a space object is launched."[145] This definition applies to all states that participate in a joint launch.[146] Under Article VI of the OST, states are internationally responsible for the space activities of their nationals.[147] Consequently, Akera is a launching state of the X-12A because its corporate nationals are a part of the "international launch services consortium" that launched the satellite.[148] Moreover, the launch took place in the waters of the Langerhans Islands an area which in Akera's own view is part of its territory.[149] Because Akera is jointly and severally liable for any damage attributable to the X-12A,[150] and

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142 *Supra* part III.B.2

143 *See Gabčíkovo–Nagymaros Project*, *supra* note 44 para. 80; *accord Yukon Lumber Case*, *supra* note 42 ("[T]he Canadian Government, having been able to avoid the grievance . . . does not seem to be entitled now to hold the United States . . . in any way responsible for it.").

144 LC art. I(c)(i).

145 LC art. I(c)(ii).

146 *See* LC art. V.

147 OST art. VI; *see also* Bin Cheng, *The Commercial Development of Space: The Need for New Treaties*, 19 J. Space L. 17, 21 (1991).

148 *Compromis* para. 7.

149 *See id.* para. 6.

150 LC art. VI.

because both Akera and Mheni are parties to this case, it is logical for this Court to apportion liability equitably between Akera and Mheni.[151]

3. As a Launching State, Akera Is Specifically Prohibited from Recovery for the Deaths of Its Two Military Personnel Under the Liability Convention if Attributable to the X-12A.

Even if the deaths of the Akeran military personnel can be attributed to the X-12A, Akera is barred from recovery for such damage under the LC as a launching state. Article VII of the LC states that the convention does not apply to "damage caused by a space object of a launching State" to that launching state's nationals.[152] Thus, Akera should be barred from recovering for the deaths of its military personnel.

Submissions to the Court

For the foregoing reasons, the Government of the Commonwealth of Mheni, Respondent, respectfully requests this Court to adjudge and declare that:

1. Mheni is not liable under international law for any EMI preventing access to the SEANAV signal.
2. Akera violated international law by disabling the X-12A satellite resulting in its destruction.
3. Mheni is not liable to Akera for the loss of the unmanned aerial vehicle, the damage to the military facility, or the deaths of the two Akeran military personnel.

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IISL

[151] Akera and Mheni could then seek recompense from the other states that participated in the launch of the X-12A as part of the "international launch services consortium."

[152] LC art. VII(a).