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**45<sup>TH</sup> ANNUAL TELDERS INTERNATIONAL LAW**

**MOOT COURT COMPETITION 2022**

**IN THE  
INTERNATIONAL COURT OF JUSTICE**



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**AT THE PEACE PALACE  
THE HAGUE, NETHERLANDS**

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**2021 General List No. 11**

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*Case concerning the compensation due from the exploded M2M Satellite's Space Debris*

REPUBLIC OF JONAM  
(The Applicant State)

**V.**

REPUBLIC OF MALEEN  
(The Respondent State)



## CASE RECORD

### A. BACKGROUND

1. The Republic of Jonam (“**Jonam**”/“**Applicant**”) and the Republic of Maleen (“**Maleen**”/“**Respondent**”) are two neighbouring countries, both members of the United Nations (“UN”). They are located in the continent of South Raunyka, home to the Nemozon, the world’s largest rainforest; also known as the lung of the Earth.
2. Jonam is known for its pristine biodiversity and rare species. It is a developing country with an agrarian economy. 50% of the Nemozon is on Jonamian territory and 10% on Maleen’s territory. Jonam suffered major economic losses in light of the 2019 Nemozon rainforest wildfires. The Jonamian Nemozon is also home to the Popri tribal community. Jonam and Maleen are also coastal states, having highly migratory species of pacific leatherback sea turtles, traversing through their waters and high seas.
3. Maleen is one of the world’s fastest growing economies. To advance such ambitions, on 15 August 2009, Maleen’s Prime Minister, Ms. Bel Bonetti, announced from the headquarters of Maleen’s State-owned International Space Agency (“**MISA**”), the first of its kind flagship mission titled “Mankind To Mars” (“**M2M**”). M2M was designed to place an interplanetary observatory satellite in Mars’ orbit. This was hailed as the world’s cheapest Mars mission, at a cost of \$75 million US Dollars. The purpose of M2M was to collect data for the possible presence of Methane in Mars’ atmosphere, and how any such findings could be useful for the Earth.
4. The key difference between this mission and the most expensive Mars mission by the world’s most powerful national space agency, Modern Aeronautical Space Agency (“**MASA**”), was that MASA used a heavier payload and a more sophisticated launch vehicle. MISA had also initially planned to use its indigenously built Geosynchronous Satellite Launch Vehicle, but since MISA was having predicaments with its cryogenic engines for three years, MISA’s scientists decided instead to reduce the payload and use the Polar Satellite Launch Vehicle. The Polar Satellite Launch Vehicle had not previously been used for such a mission. The M2M successfully aligned in the Martian Orbit in 2013 in its first attempt. The aim was for the M2M to orbit Mars for one Martian year.<sup>1</sup>
5. In September 2020, in recognition of the widespread impacts of climate change, especially in light of the latest Intergovernmental Panel on Climate Change’s (“**IPCC**”) reports, the United Nations Committee on the Peaceful Uses of Outer Space (“**UNCOPUOS**”), released a [‘Report on Space Applications for Sustainable Development Goal 13: Climate Action’](#) (“**UNCOPUOS Report**”). The UNCOPUOS

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<sup>1</sup> 1 Martian year = 687 Earth days.



Report calls for the use of space technologies to successfully meet the “Nationally Determined Contributions” (“NDCs”) of nations under the Paris Agreement on Climate Change, 2015 (“**Paris Agreement**”).

6. Soon after, in June 2021, during the [G7 Summit](#) held in the United Kingdom, participants emphasized the threat posed by increasing ‘Space Debris’. It was noted by the delegates that, “... [C]urrently an estimated 900,000 pieces of Space Debris, including old satellites, spent rocket bodies and even tools dropped by astronauts orbiting Earth, could stay in orbit for hundreds of years and present a real danger to the rapidly increasing number of new satellites being launched each year...”
7. Noting with concern these recent developments, whilst also recognising its ‘Common but Differentiated Responsibilities’ (“**CBDR**”) under the Paris Agreement and in line with the object and purpose of the Vienna Convention for the Protection of the Ozone Layer, 1985 (“**Ozone Convention**”), Maleen’s Minister of Space & Environment, Mr. Deanly Sparnik, commissioned a Working Group of Experts under the MISA, to study the relationship between space debris and climate change. The findings of a 400-page report (“**Maleen’s Working Group Report**”) on 24 July 2021, were alarming. In particular, it noted: “Through the re-entry of space junk in the Earth’s atmosphere, immense heat is generated, that causes the thinning of the density of the atmosphere due to a sudden burst of carbon dioxide’s release. The shockwaves created also produce nitric oxide, a cause of ozone depletion.”
8. In light of recent events, a Jonam-based Environmental NGO, Peoples Against Wastage (“**PAW**”), released a 50-page report on 6 August 2021, titled: “Damage to the Earth’s Environment by Space Junk” (“**PAW Report**”). The PAW Report stated: “Space Debris can sometimes contain highly toxic rocket fuel called ‘Unsymmetrical Dimethylhydrazine’ (“**UDMH**”) – which can spread in the Earth’s atmosphere. It also can penetrate through soil and water, harming plants and animals.” When the media sought comments from Jonam’s national Aeronautical and Space Agency (“**JASA**”), JASA’s scientists kept silent “pending governmental enquiries”.
9. Maleen had pledged in 2015 to meet its 1.5 to 2 degree Celsius below pre-industrial levels target by 2100, as enshrined under the Paris Agreement. To achieve this goal, it sought to be a beneficiary of the [Green Climate Fund](#) (“**GCF**”), established as a financial mechanism under the aegis of the United Nations Framework Convention on Climate Change, 1992 (“**UNFCCC**”) for various sustainable development projects. Therefore, Maleen’s Ministry of Space & Environment, on advice from MISA’s scientists, prepared a proposal for the GCF on 19 September 2021, titled: “The Reformation and Re-utilisation of Interplanetary Satellites for Earth Observatory purposes for one year before being discarded as Space Junk” (“**Maleen Proposal**”).
10. The Maleen Proposal sought to conclude bespoke contracts for each MISA interplanetary observatory satellite with the International Space Station (“**ISS**”). Such



contracts would facilitate docking, refueling and refurbishment, after which a satellite could be relaunched into the Earth's orbit. Such an exercise would considerably reduce Space Junk; it would also be in consonance with the need for avoiding natural disasters, by using remote sensing technologies. The timing of this proposal seemed to be perfect for Maleen, just ahead of a Conference of Parties 26 ("COP") on Climate Change, to be held in Glasgow in November 2021. The M2M would be the only satellite designed to monitor the Nemozon region between Jonam and Maleen, in the backdrop of the recent damages caused in the Nemozon by other actors.

11. Prime Minister Bonetti spoke of Maleen's flagship program, named "The Conversion and Reuse of Interplanetary Satellites as Earth Observatory Satellites for one additional year" at the High-Level Week of the United Nations General Assembly ("UNGA") in 2021. This received appreciation from UN Member States. Later in September 2021, upon introduction of a formal resolution on this issue, the UNGA unanimously passed a resolution ("**Satellites Resolution**"), which stated: "Noting the significant development in space exploration, and the need to sustainably use spatial exploration related manufactured products, states parties are encouraged to conduct further research to study the viability and risks associated with prolonging the lifecycle of an interplanetary satellite, to be used as an Earth observatory satellite."
12. On 1 October 2021, high-level representatives of many national space agencies, including MISA and JASA, met at a meeting of the [Space Climate Observatory](#) ("SCO"), an international consortium (without legal personality) of global space agencies. During this meeting, MISA's officials informed other space agencies of MISA's plan to revolutionize space exploration. For the first of its satellites for this exploratory program, Maleen proposed to recycle the M2M, which was due to return from Mars and retire on 4 October 2021. For the purposes of its refurbishment, refueling and reuse as an Earth observatory satellite for one more year, Maleen had received \$1 Million US Dollars under the aegis of the GCF. MISA's scientists made a presentation titled: "Transforming Satellites in Space". That presentation indicated how money, raw materials and time could be saved by making better use of the utilities already available at the ISS. Using these, a 'refurbishment, refueling and reuse ("**RRR**") facility' could be setup at the ISS to transform the M2M. In the presentation, the delegation of Maleen proposed bespoke contracts for each satellite that would avail of the RRR services. Such contracts would require a fee to be paid to the ISS.

## **B. THE M2M SATELLITE'S REFURBISHMENT AND SUBSEQUENT EXPLOSION**

13. On 2 October 2021, on the sidelines of the SCO meeting, scientists from world-renowned national space agencies, who own and operate the ISS, decided to enter into



a first of its kind Memorandum of Understanding (“**MoU**”) titled: “Refurbishment, Refueling and Reuse of the M2M interplanetary satellite by its conversion to an Earth observatory satellite for one year at the ISS” (“**M2M MoU**”). At a media conference later that day, the representative of Jonam, Ms. Célia Novathe described the M2M MOU as a “hurried decision”.

14. The 15 managing States of the ISS (including MASA) entered into the M2M MOU with Maleen. The MoU contained a limited liability clause. The MOU’s dispute resolution clause referred to the International Court of Justice (the “**ICJ**” or the “**Court**”) as the forum for adjudication of any disputes that had not been settled amicably.
15. On 4 October 2021, the M2M successfully completed its Mars mission and docked at the ISS for further procedures under the M2M MoU. Pursuant to the MOU, cosmonauts on the ISS submitted to MISA, a “condition report”, which described the M2M as being in “good condition”.
16. Later, on 4 October 2021, while cosmonauts on board the ISS were asleep, an Anti-Satellite Weapon (“**ASAT**”) named “Space Debris Eliminator” (“**SDE**”) was launched. The launch was part of a joint exercise by three nations, including Jonam, to reduce satellite traffic and junk. The exercise would involve shooting down and discarding an old retiring Earth observatory satellite named “GOM 100”. This satellite was jointly owned and registered by these nations and located just 56 kilometers away from the ISS. As a result of the shutdown, thousands of space debris, about 5 millimeters each in size, blew up and flew at high speeds. The space debris’ velocity was later described as “ten times faster than a fired bullet”.
17. Since this ASAT exercise had been a normal occurrence since 2019, the cosmonauts proceeded to refurbish the M2M the following day, without checking the ISS for any damage. On 5 October 2021, the M2M was launched as an Earth observatory satellite in Earth’s orbit. After three days, there was a sudden leakage in the pressure control tubes of the refurbished M2M. Shortly afterwards, the M2M exploded. On 9 October 2021, several planks of the M2M crash-landed near Popri Village, located in the outskirts of Jonam, within the Nemozon. This caused severe damage in Popri, including to the cultural heritage of the Popri community, by damaging the religious Apsup temple. It also led to loss of human life, flora, fauna and damage to the Moji River. The Moji River flows into the Pacific Ocean and hosts several endangered highly migratory species under the International Union for Conservation of Nature (“**IUCN**”)’s lists and the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (“**CITES**”).
18. Climate scientists worldwide deemed this incident an “unusual occurrence”. They called for an “immediate investigation”, including an “assessment of the gradual



thinning of the Ozone Layer above the Nemozon”. In the following week, several incident reports were published. Their findings are as follows:

### C. JONAM’S CLAIM

19. Jonam’s Space & Environment Ministry released a Report titled “Damage caused to the Jonamian Territory and Peoples’ due to the impact of the M2M Satellite’s Space Debris” (“**Damage Report**”), dated 11 October 2021. **Exhibit A** of the Damage Report assessed the damage caused in Popri under the following heads:

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#### **[I] Damage to Humans: Violation of International Human Rights Law**

- i. Loss of five civilian lives – all of whom were directly hit by the space debris and died on the spot; three of them were between ages 20-45, and two aged 65-80.
- ii. Three people suffered major injuries (such as permanent impairments – loss of mobility, sight, hearing etc.).
- iii. Seven people succumbed to minor injuries.
- iv. A World Health Organization official, based in Jonam, was quoted to have said, in her individual capacity: “Based on the world’s past experience, such an incident can also cause long-term effects, such as anemia, allergies, sore throat and skin cancer. There might after all, be a link between space debris and the health of people.”

#### **[II] Damage to Flora, Fauna and the Marine Environment: Violation of International Environmental Law and the Law of the Sea**

- i. One Sumatran female elephant, aged four years, died.
- ii. 56 pangolins died; 28 were severely harmed.
- iii. Through the UDMH discharge, it is believed that 30 pacific leatherback sea turtles in the Pacific Ocean died within a week.
- iv. Soil acidification has occurred in an area of 3 square kilometers in the Nemozon.
- v. About 100 farm animals, 54 poultry and 46 cattle, died as a result of the impact, which is similar to an impact caused by aerial spraying.

#### **[III] Cultural Damage: Violation of International Human Rights Law**

- i. The Aphsup temple, an important part of Popri cultural heritage, was partially (25%), yet permanently, damaged as a result of the impact.

#### **[IV] Damage to the Climate: Violation of International Environmental Law**



- i. It is likely that this impact has caused damage to the Ozone Layer above Jonam, which can lead to many hazards, particularly human skin cancer.

Jonam shall quantify these damages after a procedure for settlement or litigation is decided by the parties.”

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20. In a *Note Verbale* prepared on the same day as the report, the President of Jonam, Mr. Hanidluca Khumani, wrote to Prime Minister Bel Bonetti, alleging that, “... [i]t is due to Maleen’s lack of due diligence, whilst creating a ‘dangerous transformative model’, and the M2M’s subsequent explosion and crash landing in Popri, that Maleen has committed an internationally wrongful act by causing transboundary harm, in violation of relevant treaties and customary international law. Jonam expects Maleen to act as a good neighbour and amicably settle this dispute, by paying fair compensation as a form of reparation for the four categories of damages suffered. Additionally, Jonam asks Maleen to undertake to not refurbish any satellites, originally designed for another purpose.” Annexed to this letter was Exhibit A of the Damage Report, which listed the four heads of damages for which Maleen was allegedly liable for compensation.

#### D. MALEEN’S CLAIM

21. Maleen also prepared its report dated 12 October 2021, titled “Damage to the M2M Satellite as a result of ISS’ negligence and the elimination of GOM 100 by Jonam and other actors” (“**Crash Report**”). The Crash Report alleged that “... [t]he cosmonauts on the ISS failed to carry out an inspection, in violation of the M2M MoU, after an impact with the exploded space debris of GOM 100. The ISS cosmonauts should have exercised due diligence and check the RRR facility for any damage, upon the negligent usage of an ASAT by Jonam and three other nations on the night of 4 October 2021. Consequently, there was a leak in the pressure control tubes of the M2M, which led to its explosion and crash on Jonamian territory. Maleen therefore does not owe compensation to Jonam. On the contrary, Jonam and other nations are liable for the damage caused to the M2M.”
22. The UNCOPUOS, in a special meeting held on 14 October 2021, confirmed the findings of Maleen’s Crash Report to the extent of the cause of the damage to the M2M. The UNCOPUOS did not, however, comment on the international State responsibility of any nation.
23. Through a letter dated 16 October 2021, Maleen’s Prime Minister responded in unequivocal terms, denying any fault of Maleen. The letter was addressed to President



Khumani and annexed the Crash Report and the UNCOPUOS Report to substantiate the claims. The letter accordingly asked Jonam to pay fair compensation for the loss of the M2M, which Maleen's Foreign Ministry stated would "... ideally be determined through a mutually negotiated settlement or litigation." The Maleenian Foreign Ministry, in a press conference held that day, added: "This is not the treatment deserved by a law-abiding nation, willing to go the extra mile to revolutionize space exploration, whilst balancing it with its NDC's under the Paris Agreement."

#### **E. SPECIAL AGREEMENT TO THE COURT AND QUESTIONS PRESENTED**

24. After failed negotiations, the Ministers of Foreign Affairs of both nations jointly drafted a "Special Agreement". On 1 November 2021, they submitted the Special Agreement to the ICJ's Registry, pursuant to Articles 36(1) and 40(1) of the Statute of the Court. The Special Agreement, in relevant part, referred the following questions for the Court's determination:

- "Question I - Has Maleen committed an internationally wrongful act by the crash landing of the M2M Satellite on Jonamian territory?
- Question II - Is Maleen liable to pay compensation for any or all four categories of damages listed in Exhibit A of the Damage Report?
- Question III - Does Jonam bear international responsibility for damage caused to the M2M Satellite?
- Question IV - If Maleen and/or Jonam are found to be liable to pay compensation for any or all of the damages caused, is this a case of contributory negligence of the ISS, which would accordingly apportion the quantum of the damages so caused?"

25. After the parties and the Court agreed an expedited procedure, the written and oral phases of the hearings took place; they concluded on 1 December 2021. On 22 January 2022, the Court rendered its judgment on the Merits.





## F. THE COURT'S JUDGMENT ON MERITS: 22 JANUARY 2022

26. In its judgment, the Court held the following (extracted):

“64: The Court relies on its consistent jurisprudence pertaining to reparations. In the environmental context, the Court believes that the nature of environmental disputes is such that the application of the higher standard of proof would have the effect of making it all but impossible for a State to discharge the burden of proof.

68. The Court is fully aware of the inherently volatile conditions in Outer Space and the ensuing damage caused in the present circumstances. In arriving at its decision, the Court has paid due consideration to the tangible and intangible nature of harms alleged. It has applied the relevant applicable treaties, rules of customary international law, and the rules of evidence for standard and burden of proof and attribution of damage caused.

161. For these reasons

### THE COURT,

(1) Unanimously,

*Finds* that Maleen has violated international space law and other treaties of environmental and human rights law. It is internationally responsible for the damage caused to the territory of Jonam;

(2) By ten votes to five,

*Decides* that Maleen would in principle be liable for the damages caused to Jonam, either partially or fully, for the four heads of damages claimed, subject to showing of evidence by both the parties at the stage of reparations;

(3) By eight votes to seven,

*Finds* that Jonam has violated international space law and is internationally responsible for the damage caused to the M2M Satellite;

(4) By nine votes to six,

*Decides* that this is a case of contributory negligence of the ISS' host nations. Thus, the damage so caused should be accordingly apportioned to the extent of the liability to the parties to the dispute. However, the scope of ISS' liability is beyond the scope of the upcoming proceedings on reparations.



169. ... [I]n these circumstances, the Court will decide on the amounts of compensation due by parties to the dispute to each other, based on equitable considerations.

170. The parties may produce credible reports by international organisations, expert opinions, price comparisons of the heads of the damages to real life incidents. The Court will observe the jurisprudence of international adjudicatory bodies, and rely upon contemporary valuation and compensation approaches for the environmental and other goods and services, to discuss each head of damages in Exhibit A, claimed by Jonam and for the loss of M2M Satellite, claimed by Maleen. The parties should also examine the ‘Willingness To Pay’ (“**WTP**”) components and ‘Evidentiary Discount Factors’ (“**EDF**”) for each of the damages claimed.

173. The parties have agreed to present their written and oral submissions collectively from 8-10 June 2022, for the case on reparations...

(Signed)

**PRESIDENT”**

#### **G. CONSIDERATIONS FOR THE PLEADINGS ON REPARATIONS**

##### 27. Notes:

- i. Jonam and Maleen are states parties to any relevant treaties cited by the students.
- ii. Students will be judged on the basis of the ability to prove the heads of damage associated with each claim. For avoidance of doubt, students are not expected to fully delve into the question of quantum and provide an exact financial valuation. Brief approximations of attempts to quantify heads by discussing the relevant compensation approaches and applying them to the best possible reasonably comparable international standards shall be acceptable.

Example – A party should argue that the Court should make its decision based on – (1) X compensation approach and (2) Y – real life price comparator of (3) claim Z. It may attempt to, but it need not argue that it claims a precise amount under each particular head.

- iii. Students are encouraged to use the contextual facts in the record, to substantiate their arguments on the damages claimed.

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