Tortious Liability in Outer Space : Lacunas in International Laws and the Ways Forward to Protect Thai Space Activities under Existing International and Domestic Legal Instruments*

ความรับผิดทางละเมิดในอวกาศ : ช่องว่างในกฎหมายระหว่างประเทศ และแนวทางคุ้มครองกิจกรรมอวกาศไทยภายใต้กลไกทางกฎหมายระหว่างประเทศและกฎหมายภายในที่มีอยู่ในปัจจุบัน

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Abstract

Space technology is being globally developed by many governmental and private agencies. Space activities are also being conducted by both foreign agencies and Thai agencies. Heretofore, even though we have international space laws, namely the 1967 Outer Space Treaty (the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies), and the 1972 Space Liability Convention (Convention on International Liability for Damage Caused by Space

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Objects), this space law regime is not able to fairly protect the right of injured persons from tortious acts in outer space. They do not touch upon individuals' tortious acts in outer space and do not impose any civil liability on them. The international space law regime lacks of some key definitions in the 1967 Outer Space Treaty and the 1972 Space Liability Convention. It does not truly cover all space activities. Although it provides that non-governmental entities that conduct space activities must bear international responsibility, but it does not provide any method to injured persons to claim for compensation from those entities conducting space activities.

Meanwhile, procedures in domestic tort laws are far more developed than those mentioned. It, nevertheless, has some problematic issues on different choices of law rules among states, and immunity of States and international organizations. Such immunities make those entities stay above a state's jurisdiction which makes them cannot be sued before any particular state's court.

This article points out some problems in international space laws as mentioned and transnational tort litigation system in general, in claiming of damage caused in outer space. It analyzes into the ways forward to protect Thai space activities under the current international laws and Thai domestic laws, namely the Conflict of Laws Act B.E. 2481(1938), the Civil and Commercial Code of Thailand, and the Civil Procedure Code of Thailand. Such ways forward would be able to adapt with other countries as well. The author believes that the guideline as such will benefit Thailand and international community, and bring justice up from the earth into outer space.

Keywords : Tort, Tortious liability, Outer space

บทคัดย่อ

เทคโนโลยีอวกาศกำลังได้รับการพัฒนาอย่างกว้างขวางทั่วโลกโดยหลายหน่วยงาน ทั้งภาครัฐและภาคเอกชน ทั้งหน่วยงานในประเทศไทยและต่างประเทศก็ได้ดำเนินกิจกรรมในอวกาศเช่นกัน แต่จนปัจจุบันนี้ ถึงแม้จะมีกฎหมายระหว่างประเทศว่าด้วยอวกาศ คือ สนธิสัญญาอวกาศ ค.ศ. 1967 (the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and

Other Celestial Bodies) และอนุสัญญาความรับผิดต่อความเสียหายที่เกิดจากวัตถุอวกาศ ค.ศ. 1972 (Convention on International Liability for Damage Caused by Space Objects) แต่ระบอบกฎหมายดังกล่าวนี้กลับไม่สามารถคุ้มครองสิทธิของผู้เสียหายจากการกระทำละเมิดในอวกาศได้อย่างเป็นธรรม กล่าวคือ กฎหมายเหล่านี้ไม่กล่าวถึงการกระทำละเมิดของบุคคลในอวกาศ และไม่ได้กำหนดความรับผิดทางละเมิดแก่บุคคลผู้ทำละเมิดในกรณีดังกล่าว ไม่กล่าวถึงคำนิยามของคำสำคัญบางคำในตัวบท ไม่ครอบคลุมความเสียหายจากกิจกรรมทุกอย่างในอวกาศ และไม่กล่าวถึงกระบวนการเรียกค่าเสียหายจากหน่วยงานที่ไม่ใช่รัฐซึ่งทำละเมิด ทั้งที่อนุสัญญากล่าวว่าหน่วยงานดังกล่าวก็ต้องรับผิดในความเสียหายทางแพ่งเช่นกัน

ในขณะเดียวกัน กระบวนการทางแพ่งของกฎหมายละเมิดภายในแต่ละประเทศได้รับการพัฒนาไปไกลกว่ามาก แต่ทั้งนี้ก็ยังคงมีปัญหาบางประการในการบังคับใช้กับการละเมิดในอวกาศ ปัญหาดังกล่าวเกี่ยวเนื่องกับการขัดกันแห่งกฎหมายระหว่างรัฐ และความคุ้มกันแห่งรัฐและองค์การระหว่างประเทศ ซึ่งคุ้มกันรัฐและองค์การระหว่างประเทศที่ก่อความเสียหายทางละเมิดให้มิต้องถูกฟ้องเป็นคดีในศาลของรัฐใดรัฐหนึ่งภายใต้เขตอำนาจศาลแห่งรัฐนั้น

บทความนี้แสดงปัญหาบางประการในกฎหมายระหว่างประเทศว่าด้วยอวกาศและระบบการฟ้องคดีละเมิดข้ามชาติเพื่อเยียวยาความเสียหายจากเหตุละเมิดในอวกาศ บทความนี้วิเคราะห์ถึงแนวทางคุ้มครองกิจกรรมทางอวกาศของไทยภายใต้กฎหมายระหว่างประเทศในปัจจุบันดังที่กล่าวมาแล้ว และกฎหมายภายในของไทย ได้แก่ พระราชบัญญัติว่าด้วยการขัดกันแห่งกฎหมาย พ.ศ. 2481 ประมวลกฎหมายแพ่งและพาณิชย์ และประมวลกฎหมายวิธีพิจารณาความแพ่ง ซึ่งแนวทางดังกล่าวอาจสามารถนำมาปรับใช้แก่ประเทศอื่น ๆ ได้ด้วย ผู้เขียนเชื่อว่าการพัฒนากลไกทางกฎหมายดังกล่าวจะเกิดประโยชน์แก่ประเทศไทยและประชาคมโลก และนำความยุติธรรมจากภาคพื้นผิวโลกไปสู่อวกาศในที่สุด

คำสำคัญ : ละเมิด, ความรับผิดทางละเมิด, อวกาศ

Chapter 1: Introduction

Human is suspect creature. We, human, are always eager to know what are above us out of airspace. Telescopes, satellites, rockets, space crafts, and other space objects have been created. First innovation that showed human's capability to reach into outer space was developed in the World War II period. The German V-2 Rockets, the world's first ballistic missiles, attacked London in

1944 by flying across the nations.[1] The V-2 has operational range of 200 kilometers.[2] This range is high enough to reach into outer space.[3] In 1957, the Soviet Union launched the first artificial satellite, Sputnik 1, into outer space. In 1961, Russian man, Yuri Gagarin, became the first human that orbited around the Earth in the Vostok 1. The flight lasted 108 minutes, and reached an altitude of 327 kilometers. In U.S.A., the first American satellite, Explorer 1, started orbiting in 1958. In 1961, Alan Shepard became the first American flew into outer space. Recently, the U.S. Air Force successfully flew three X-37B Orbital Test Vehicles since April 2010.[4]

In military field, the U.S. president, Ronald Reagan, called for the development of a missile-defense system in 1983, namely Strategic Defense Initiative (SDI) project. The project was mocked as "Star Wars".[5] It was a project aimed at developing a space-based missile defense program that could protect America from nuclear attack. The idea of futuristic technology, including space-based laser was included in the project, even such laser has not been successfully developed.[6] Recently, in June 2018, the U.S. President, Donald Trump, expressed his idea of establishing the U.S. Space Force to dominate

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[1] The Aerospace Corporation, **A Brief History of Space Exploration** [online], 10 December 2018. source https://aerospace.org/story/brief-history-space-exploration; Richard Hollingham, **V:2 The Nazi Rocket that Launched the Space Age** [online], 10 December 2018. source http://www.bbc.com/future/story/20140905-the-nazis-space-age-rocket

[2] Hollingham, **V:2 The Nazi Rocket that Launched the Space Age** [online], 10 December 2018. source www.bbc.com/future/story/20140905-the-nazis-space-age-rocket

[3] John A. Vosburgh, "Where Does Outer Space Begin?," **American Bar Association Journal** 56 [online], 2, (February 1970): 134-136. source https://www.jstor.org/stable/pdf/25725041.pdf

[4] U.S. Air Force, **X-37B Orbital Test Vehicle** [online], 10 December 2018. source http://www.af.mil/About-Us/Fact-Sheets/Display/Article/104539/x-37b-orbital-test-vehicle/

[5] Kevin D. Williamson, **A Satisfying 'Star Wars' Sequel** [online], 10 December 2018. source https://www.nationalreview.com/2017/06/ronald-reagan-missile-defense-star-wars-initiative-huge-success-despite-critics/

[6] U.S. Department of State, **A Satisfying Strategic Defense Initiative (SDI),** 1983 [online], 10 December 2018. source state.gov/r/pa/ho/time/rd/104253.htm

outer space.[7] These incidents could result in damaging of space assets or space objects in outer space in future.

Furthermore, increasing of space debris and idea of space tourism are also important and are going to be talked more in future. These issues inevitably cause damage in outer space somehow. One of notable example can be referred to the 2009 incident which the Russian derelict satellite (Cosmos 2251) collided with the United States' satellite (Iridium 33).[8] Another incident was the collision of China's satellite fraction and Russian Ball Lens In The Space (BLITS) satellite in 2013.[9]

Considering those facts, many space activities are being operated by many capable states around the world, including Thailand. Thai government and private entities also play roles in outer space. Those activities are demonstrated in the Chapter 4.

This article is indicating the insufficiency of current international space law regime which is unable to fairly protect injured persons from space activities if damages occurred. It is demonstrating that domestic tort law system still has problems in some aspects. It is enumerating how Thai domestic laws, together with current international space law regime, protect Thai space assets and recover injured entities from tort occurred in outer space. It is eventually offering that a proper legal instrument needs to be developed to cope with potential damage from space activities. Additionally, the article is elaborating the ways to develop new legal instrument.

The article starts from the Introduction which explains briefly about history of space technology development and history of space activities. The

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[7] Andrew O'reilly, **Trump Orders Establishment of 'Space Force' as 6th Branch of Military** [online], 10 December 2018. source http://www.foxnews.com/politics/2018/06/18/trump-orders-establishment-space-force-as-6th-branch-military.html

[8] The National Aeronautics and Space Administration, **The Collision of Iridium 33 and Cosmos 2251: The Shape of Things to Come** [online], 10 December 2018. Source https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20100002023.pdf

[9] Leonard David, **Russian Satellite Hit by Debris from Chinese Anti-Satellite Test** [online], 10 December 2018. source https://www.space.com/20138-russian-satellite-chinese-space-junk.html

second Chapter indicates laws involving with the issues. Those are international space law, Thai tort laws, and Thai conflict of laws rules. The first cornerstone chapter, third Chapter analyses into the problems and lacunas of the laws in the second Chapter. Fourth Chapter, the second cornerstone, enumerates space activities of Thai people, risks, and applications of existing legal mechanisms order to protect space assets. Fifth chapter proposes the futuristic ideas of filling the loopholes mentioned in the third Chapter by developing of new legal instruments. Finally, the sixth Chapter is conclusion of this article.

Chapter 2: Relevant Laws and Regulations

The author has categorized the relevant laws into three categories, namely international space laws, tort laws, and conflict of laws rules.

1. Space Laws

The relevant space laws here are Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (the 1967 Outer Space Treaty) and the Convention on International Liability for Damage Caused by Space Objects (the 1972 Space Liability Convention).

When the Sputnik I was launched into outer space in 1957, reaching to outer space became real. It is not only an imagination like in a scientific fiction anymore. Hence, the world's attention moved to necessity of space law. So that one scholar in air and space law, Professor Diederiks-Verschoor, expressed her view: "*What the Wright brothers did for air law, Sputnik I did for space law*".[10]

The United Nations General Assembly, in 1958, recognized the common interest of mankind in outer space. It basically means outer space should be used only for peaceful purposes. At that time, an *ad hoc* Committee on the Peaceful Uses of Outer Space was also established by the Assembly to report to the Assembly the nature of legal problems involved with space

[10] Isabella Henrietta Philepina Diederiks-Verschoor and V Kopal, **An Introduction to Space Law**, 3rd edition (London: Kluwer Law International, 2008), p. 2.

exploration.[11] One year later, in 1959, the permanent Committee was established, namely the Committee on the Peaceful Uses of Outer Space (UNCOPUOS).[12] This permanent committee was introduced, to report the Assembly the legal problems which may arise from space explorations and uses. The Assembly also, in 1961, in order to strengthen international co-operation in the use of outer space, commended to the States that international law, including the U.N. Charter, shall applies to outer space and celestial bodies.[13] In this occasion, *terra nullius*[14] doctrine was adopted to be applied to outer space.[15] In 1963, nine concrete fundamental principles of space law were eventually declared by the Assembly by adopting the Resolution 1962 (XVII) on December 13 of that year.[16] Eventually, those nine principle were put together in the very first world's international space law, 'Treaty on Principles Governing the Activities of States in the Exploration and

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[11] United Nations General Assembly, "General Assembly Resolution 1348 (XIII) Question of the peaceful use of outer space, adopted 13 December 1958 [online]", 10 December 2018. source https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/747/92/IMG/NR074792.pdf?OpenElement.html

[12] United Nations General Assembly, "General Assembly Resolution 1472 (XIV) International Cooperation in peaceful uses of outer space, adopted 12 December 1959 [online]", 10 December 2018. source https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/142/95/IMG/NR014295.pdf?OpenElement

[13] United Nations General Assembly, "General Assembly Resolution 1721 (XVI) International Cooperation in peaceful uses of outer space, adopted 20 December 1961 [online]", 10 December 2018. source https://documents-dds-ny.un.org/doc/RESOLUTION/GEN/NR0/142/95/IMG/NR014295.pdf?OpenElement

[14] Tim Hillier, **Sourcebook on Public International Law**, 1st edition (London: Routledge-Cavendish, 1998), p. 223.

[15] United Nations General Assembly, "General Assembly Resolution 1721 (XVI) International Cooperation in peaceful uses of outer space," adopted 20 December 1961.

[16] United Nations General Assembly, "General Assembly Resolution 1962 (XVIII) Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, adopted 13 December 1963 [hereinafter Declaration of Space Legal Principles] [online]," 10 December 2018. source http://www.un-documents.net/a18r1962.htm

Use of Outer Space, including the Moon and Other Celestial Bodies' (the 1967 Outer Space Treaty), which was adopted by the Assembly in late 1966 under the Resolution 2222(XXI), and was opened for signature in early 1967.[17]

The 1967 Outer Space Treaty is the very first international law governing activities in outer space. It could be regarded as 'Space Charter' or 'Space Magna Charta'.[18] It contains nine fundamental legal principles which are, in short, 1) the benefit and interests of all mankind, 2) free exploration and use by all States on a basis of equality and in accordance with international law, 3) national sovereignty free in outer space (*terra nullius*), 4) other international laws and the U.N. Charter are applied to the exploration and use of outer space, 5) international responsibility for national activities in outer space, 6) principle of cooperation, 7) retaining of jurisdiction and control over registered space object and any personnel thereon, 8) international liability for damage caused in outer space, and 9) astronauts shall be regarded as envoys of mankind, and shall be assisted. These principles serve the purpose of peaceful use of outer space.[19]

Amongst those nine legal principles, the duties to be responsible and to be liable for damage caused to another State Party to the Treaty were mentioned in Article VI and Article VII.

"*Article VI: States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the*

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[17] United Nations Office for Outer Space Affairs, "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, adopted 19 December 1966 [hereinafter Outer Space Treaty of 1967] [online], " 10 December 2018. source http://www.unoosa.org/pdf/gares/ARES_21_2222E.pdf

[18] Harold M. White, Jr., **International Law and Relations** [online], 10 December 2018. source https://er.jsc.nasa.gov/seh/law.html

[19] United Nations General Assembly, "Declaration of Space Legal Principles".

present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization."[20]

"Article VII: Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in outer space, including the moon and other celestial bodies."[21]

These provisions seem not to be able to cover liability of an individual from damage caused by his or her activities in outer space. The liability mentioned in these provisions is of States Parties that cause damage through "national activity".

The 1972 Space Liability Convention was drafted on the idea that "*the rights and obligations pertaining to liability for damage as laid down in the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies should be elaborated in a separated international instrument*."[22]

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[20] United Nations Office for Outer Space Affairs, "Outer Space Treaty of 1967," art. VI. source http://www.unoosa.org/pdf/gares/ARES_21_2222E.pdf

[21] Ibid., art. VII.

[22] United Nations Office for Outer Space Affairs, "General Assembly Resolution 2777 (XXVI) Convention on International Liability for Damage Caused by Space Objects, adopted 29 November 1971 [hereinafter Space Liability Convention of 1972] [online]," 10 December 2018. source http://www.unoosa.org/pdf/gares/ARES_26_2777E.pdf

The Convention enumerates more on liability of the damage by imposing legal liability of a launching state. Article II of the Convention provides:

"*A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft flight.*"[23]

The following Articles (Article III – Article VI) explain more about the damage caused in different circumstances. However, those circumstances mention only damage caused by States to States.[24]

Article VII of the Conventions additionally invalidates the Convention from applying to the damage caused by a Launching State to its national or foreign national that is participating "*in the operation of that space object from the time of its launching or at any stage thereafter until its descent, or during such time as they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching State*".[25] Article VIII stipulates the right of suffered States to claim for compensation, and the Article IX provides the channel of claiming which is diplomatic channel. Thus, we can see that the Convention was created to govern only the issue between states.

2. Tort Laws

Tort law is basically a mechanism used to recover damages by forcing tort-feasors to pay compensation to injured persons. Each state has its own domestic tort law that basically can be enforced in its territory by exercising its jurisdiction. Thailand's tort law is written in the Civil and Commercial Code, section 420 to section 437.[26] Section 420, the general principle, says:

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[23] Ibid., art. II.

[24] Ibid., arts. II-VII.

[25] Ibid., art. VIII.

[26] Siam Legal, "The Civil and Commercial Code," [hereinafter Thai Civil and Commercial Code] [online], sections 425-428, 10 December 2018. source http://library.siam-legal.com/thai-law/civil-and-commercial-code-torts-section-420-437/

"*A person who, willfully or negligently, unlawfully injures the life, body, health, liberty, property or any right of another person, is said to commit a wrongful act and is bound to make compensation therefore.*"[27]

3. Conflict of Laws Rules

In extraterritorial case, domestic tort law of one state is able to be enforced in another state in accordance with the choice of laws rules which are normally *lex loci delicti* and *lex fori*.[28]

Under *lex loci delicit*, applicable law is considered to be the law of the place that tort occurred. On the other hand, the law of the forum will be applied if the law of the place that incident strongly goes against policy of the forum state, this is called *lex fori*.[29]

More doctrines, namely 'the most significant relationship rule' and 'governmental interest analysis'[30] were also developed to decide which country's tort laws should be applied to a particular case. Finally, the most recent theory, the idea of party autonomy, is accepted to be applied to tort litigation. This idea was also adopted in the Civil Code of Russia[31] and in the European Union Regulation on the Law Applicable to Non-contractual

[27] Siam Legal, "Thai Civil and Commercial Code," section 420.

[28] USLegal, **Laws Applicable to Torts** [online], 10 December 2018. source https://conflictoflaws.uslegal.com/laws-applicable-to-torts/

[29] Ibid.

[30] Ibid.

[31] World Intellectual Property Organization, "The Civil Code of Russian Federation, 18 December 2006, [hereinafter Civil Code of Russia] [online]," art. 1219, 10 December 2018. source http://www.wipo.int/edocs/lexdocs/laws/en/ru/ru083en.pdf

Obligations (Rome II).[32] Under the party autonomy, parties are free to choose their agreed governing law to apply with their case.[33]

Thailand has Conflict of Laws Act B.E. 2481(1938) as the main domestic law governing conflict of laws issue. This law refers to tort as a 'wrongful act'. Section 15 of the act provides the text as follows:

"*An obligation arising out of a wrongful act shall be governed by the law of the place where the facts constituting such wrongful act have taken place.*

The foregoing paragraph shall not applicable to the facts, which having taken place in a foreign country, do not constitute a wrongful act according to the Siamese law."[34]

What can be drawn from the text above is that this Thai law mainly recognizes the principle of *lex loci delicit* which cannot be applied in *terra nullius* as examined below. Meanwhile, the second paragraph does not appear to allow *lex fori* doctrine to be applied, but it merely rejects application of *lex loci delicit* in case that the tortious act is not unlawful under Thai laws.

Tortious acts in outer space which cause damages are definitely unlawful under Thai Civil and Commercial Code as mentioned.[35] However, there is no national sovereignty or any other domestic tort law in outer space to trigger the application of *lex loci delicit*. Therefore, Section 3 of the Act needs to be considered:

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[32] European Union Law, "Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 on the Law Applicable to Non-contractual Obligations, 11 July 2007, [hereinafter Rome II] [online]," 10 December 2018, art. 14, source https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R0864&from=EN

[33] Columbia Law Review Association, Inc., "Conflict of Laws: "Party Autonomy" in Contracts," **Columbia Law Review** 57 [online], 4, (February 1958): 555. source https://www.jstor.org/stable/pdf/1119750.pdf

[34] ThaiLaws.com, "Conflict of Law Act B.E. 2481 (1938)," [online], 10 December 2018. source http://www.thailaws.com/law/t_laws/tlaw0063.pdf

[35] Siam Legal, "Thai Civil and Commercial Code," section 420.

"*Whenever there is no provision in this Act or in any other laws of Siam to govern a case of conflict of laws, the general principles of private international law shall apply.*"[36]

Since the term 'principles of private international law' is broad and abstract, the author thinks 'the most significant relationship rule'[37] can be used here to apply *lex fori* doctrine or Thai substantive laws in Thai courts to tortious acts occurred in outer space.

Although outer space is likely an *extra commercium*[38] and free from national sovereignty as a *terra nullius*[39] under international space law regime, there are still some ways to enforce domestic tort laws to recover damage caused in outer space which are explained in the fourth Chapter.

Chapter 3: Mechanisms and Lacunas in International Space Laws and Feasibility of Using Doctrines on Conflict of Laws Rule with Tort Occurred in Outer Space

1. International Space Laws

1.1) Outer Space Treaty of 1967

Unfortunately, under the 1967 Outer Space Treaty, article VI, there are only three types of entity can bear international responsibility, namely '*governmental agencies*', '*non-governmental entities*', and '*international organization*'. Individuals shall not be responsible under this provision. On the top of that, these organizations or entities, under this provision, can bear international responsibility only for damage occurred from *'national activities'* in outer space.

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[36] ThaiLaws.com, "Conflict of Law Act B.E. 2481 (1938).

[37] The American Law Institute, "Restatement (Second) of Conflict of Laws s 145" [hereinafter 2nd Restatement of Conflict of Laws], 1971.

[38] Bin Cheng, **Studies in International Space Law**, 1st edition (London: Clarendon Press, 1997), page 390.

[39] United Nations Office for Outer Space Affairs, "Outer Space Treaty of 1967," art. II.; Tim Hillier, **Sourcebook on Public International Law**.

Considering those words and how they apply, Morris D. Forkosch, in his book *Outer Space and Legal Liability*, explained that '*governmental agencies*' will apply to the States where they are capable to conduct activity in outer space. '*International organization*' is applicable when the state is not capable to conduct space activities by itself and has to cooperate with the others. The Article VI also mentions '*non-governmental entities*' which can be private bodies. However, this Article requires those entities to take a responsibility only when they caused damage from '*national activities*'.[40]

The Treaty does not touch upon the scope of 'national activity' and does not even clearly define it. The author believes that this term should absolutely include the States' public acts (*acta jure imperii – "comprises those acts, which are done by a state's virtue of his sovereign authority, that means activities of governmental or public nature"*), but the issue will be complicated if the States conduct space activities as 'private acts' (*acta jure gestionis – "comprises acts where the state acts otherwise than a sovereign in private or commercial matters"*)[41] because it is unclear whether or not *acta jure gestionis* is intentionally covered by the term 'national activity'.

According to the above discussion, there is no way to use this 1967 Treaty to force individuals that causes damage in outer space either with or without state's supervision or authorization. To illustrate this, the Treaty does not govern tortious acts made by astronauts in outer space.

Article VII of the 1967 Outer Space Treaty emphasizes that the international liability shall be taken exclusively by the State Parties which harm another State Party or its persons.[42] Hence, this Article shall not apply to tortious acts made by astronauts in outer space as well. This Treaty does not

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[40] Morris D. Forkosch, **Outer Space and Legal Liability**, 1st edition (Netherlands: Springer, 1982), p. 46.

[41] Mara Wantuch-Thole, **Cultural Property In Cross-Border Litigation**, 1st edition (Berlin: De Gruyter Digital original edition, 2015), p. 279.

[42] United Nations Office for Outer Space Affairs, "Outer Space Treaty," art. VII.

impose civil liability on an individual who intentionally or negligently harm or injure other person.

The interesting point here is Article VII should be able to deal with the States' private acts (*acta jure gestionis*), as well as public acts (*acta jure imperii*), that cause damage since this provision requires no national activity. Also, it seems to appear that this Article forces the States to take international liability when damage caused from any launching by non-government entities in its territory.

The word 'international organization' was laid down in Article VI, but it is quite odd for an international organization to bear international responsibility for national activity because the nature of activity conducted by international organization should be 'international activity'. Since Article VI says that an international organization shall be responsible for compliance with this Treaty, international organizations should be internationally liable for their internal activities under Article VII if they caused damage.

Moreover, it is unclear whether or not non-government entities shall bear such liability under Article VII. Plain language of the Treaty seems not to mean so, and leave such liability to be imposed only on the States and international organization, regardless of whether or not damage caused by non-government entities under the State's authorization and continuing supervision. Such imposed liability on the States and international organizations is 'strict liability'. Meanwhile the Treaty does not consider which liability doctrine should be imposed on individual's acts.[43]

[43] U.S. Congress, Office of Technology Assessment, **Space Stations and the Law: Selected Legal Issues-Background Paper, OTA-BP-ISC-41 44-45** [online], 1st edition (Washington, DC: U.S. Government Printing Office, 1986), 10 December 2018, p. 22. source http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1011&context= spacelawdocs

1.2) Space Liability Convention of 1972

The Convention was concluded in pertaining to the rights and obligations of liability for damage as laid down in the 1967 Outer Space Treaty.[44] The key article, Article II, provides:

"*A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft flight.*"[45]

The only actor who can be liable under this Convention is obviously a 'launching state' which means a (1) State which launches or procures the launching of a space object; and (2) a State from whose territory or facility a space object is launched.[46]

As we know that a space activity basically causes high budget and wastes a lot of resources, only powerful and capable states are able to conduct a space activity or launch an object into outer space. Therefore, some states gather together and make cooperation in a form of an international organization. This needs to be considered that whether or not international organizations have to be responsible under this treaty. Even though the International Court of Justice, in 1949, rendered its opinion that international organizations have possibility to acquire international legal personality[47], but the *pacta tertiis nec nocent nec prosunt* principle was also laid down in Article 34 of the 1969 Vienna Convention on the Law of Treaties.[48] This means that

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[44] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972"

[45] Ibid., art. II.

[46] Ibid., art. I.; Bin Cheng, **Studies in International Space Law**, pages 309.

[47] Bin Cheng, **Studies in International Space Law**, pages 311.; International Court of Justice, Reparation of Injuries Suffered in Service of the U.N., Advisory Opinion, p. 174., 11 April 1949.

[48] Bin Cheng, **Studies in International Space Law**, pages 311.; Edwin Egede and Peter Sutch, **The Politics of International Law and International Justice**, 1st edition (Edinburgh: Edinburgh University Press, 1997), page 57.; United Nations, Vienna Convention on the Law of Treaties 1969 [online], Done at Vienna on 23 May 1969. source http://legal.un.org/ilc/texts/instruments/english/conventions/1_1_1969.pdf

members of an international organization which are non-parties to the 1972 Convention shall not be liable or responsible under the Convention.[49] In this regard, the author views that the questions of 'whether an international organization shall be liable' and 'whether members of an international organization shall be liable' are not the same issue. However, the 1972 Convention, Article XXII, copes with this problem. It provides that an international intergovernmental organization shall be liable only when it has declared to accept the rights and obligations provided for in this Convention.[50] The final draft came out this way even though in the negotiation stage the Legal Subcommittee considered that "*international organizations that launch objects into outer space should be liable under the Convention for damage caused by such activities*".[51]

This is a loophole that would allow some of the super power states to conduct space activities avoiding liability by conducting space activities under an international organization without such declaration, even though there is no any nation does so at the present time.

The 1972 Convention also does not impose civil liability on non-governmental entities and individuals that caused damages in outer space or from space activities. It only imposes 'strict liability' doctrine on the States and international organizations.[52]

The Convention ambiguously defines the term 'space object'. This explanation was submitted by the Indian delegation and was likely supported

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[49] Bin Cheng, **Studies in International Space Law**, pages 311.

[50] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972," art. XXII.

[51] United Nations Office for Outer Space Affairs, "Report of the Committee on the Peaceful Uses of Outer Space, U.N. Doc. Supplement No. 21 (A/7621), 1969 [hereinafter Legal Subcommittee Report of 1969] [online]," 10 December 2018, page 22, source http://www.unoosa.org/pdf/gadocs/A_7621E.pdf.

[52] U.S. Congress, Office of Technology Assessment, **Space Stations and the Law: Selected Legal Issues-Background Paper, OTA-BP-ISC-41 44-45**, page 45

by the Argentinian delegation.[53] To be precise, it does not give the definition, but merely says "*space object includes component parts of a space object as well as its launch vehicle and parts thereof*".[54] It would be easy to say that a satellite, rocket, or spacecraft is space object. The issue will be complicated and not so easy to be solved if the damage was caused in outer space by exotic military technology like direct energy weapons (laser or particle beam) that could be fired from ground-based station. We don't know exactly whether laser and particle beam can be regarded as a 'space object'.

Space debris seems to be timely issue as well. It is obvious that space debris is an 'object', but the point is whether or not they are owned by any nation. When should the ownership in space object terminated? A State might reject its liability on damage caused by its space debris like Russia did in 2009.[55]

Another issue is natural person or juristic person cannot claim for the damage although he or she is protected from being injured by other States under the Convention. The Convention grants the right of claim to the State that such person is belong to.[56] It could be said that, the Convention seems not to recognize that injured person initially has right to be recovered, but was concluded on purpose of controlling the States in international relationship rather than recovering injured persons. Furthermore, Article VII of the Convention obviously denies injured person to claim for the damage caused by his or her own government.

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[53] United Nations Office for Outer Space Affairs, Legal Subcommittee Report of 1969, page 23.

[54] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972", art. I.

[55] Timothy G. Nelson, **Regulating the void: In-orbit collisions and space debris** [online], 10 December 2018. source http://www.thespacereview.com/article/2520/1

[56] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972," art. IX.

2. Feasibility of Using Doctrines on Conflict of Laws Rules with Tort Occurred in Outer Space

Tort can be constituted through many kinds of conducts. It is sometimes not easy to be defined. Professor Winfield, a tort lawyer, said tort is an action arisen "*from the breach of a duty primarily fixed by law; this duty is towards persons generally and its breach is redressible by an action for unliquidated damages*".[57]

Because the actual international tort law does not exist, and tort laws are wildly enacted as domestic laws in each country, conflict of laws rules on tort are important in applying domestic tort laws to damage caused in outer space which could have transnational characteristic. This topic shows characteristic of each doctrine on conflict of laws rule of tort, and analyze into the feasibility of applying each doctrine with tort occurred in outer space.

There are five relevant legal doctrines for considering which state's tort law shall apply to a particular case, *lex loci delicti*, *lex fori*, the most significant relationship rule, the government interests approach, and the party autonomy.

2.1) Lex Loci Delicti

In *lex loci delicti*, courts consider the substantive rights of an injured party in accordance with the law of the state where the injury occurred. However, the application is not that harsh. The doctrine also concerns on the substantive phases of torts or the actions thereof. Where an act of tort occurs at one place and the damage takes place at another, the law of that another place applies.[58] The United States Court of Appeals mentioned in *Rayle Tech, Inc.* v. *DEKALB Swine Breeders, Inc.* (1998):

"*Under the rule of lex loci delecti, tort cases are governed by the substantive law of the state where the tort was committed.*"[59]

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[57] Percy Henry Winfield, **The Province of Law of Tort**, 5th edition (London: Sweet & Maxwell, 2014), p. 32.

[58] USLegal, **Laws Applicable to Torts**.

[59] Rayle Tech, Inc. v. DEKALB Swine Breeders, Inc., 133 F.3d 1405, 1409 (11th Cir. 1998).

It is likely impossible to apply *lex loci delictus* to any tort occurred and resulted in damage in outer space since there is no state sovereignty and domestic law jurisdiction out there in *terra nullius*. However, *lex loci delictus* can still apply if a tort in outer space caused damage in a state's territory on the earth. It can be applied to damages caused in outer space also if states agree among each other.[60]

2.2) Lex Fori

Lex fori doctrine aims differently. It basically means the law of the forum state applies, no matter where the tort or damage occurred.[61] In 1870, the English Court, in *Phillips v. Eyre*, laid down the principle describing that:

"*As a general rule, in order to found a suit in England wrong alleged to have been committed abroad, two conditions be fulfilled. First, the wrong must be of such a character that it has been actionable if committed in England;... Secondly, must not have been justifiable by the law of the place where done*"[62]

The criterions to apply *lex fori* doctrine have been studied and described by some scholars. Albert A. Ehrenzweig indicated in his work, *The Lex Fori: Basic Rule in the Conflict of Laws*, four exceptions that make *lex fori* applicable which are public policy and order public, procedure, failure to prove the foreign law, and Renvoi.[63] While Ehrenzweig views *lex fori* as the exception

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[60] U.S. Congress, Office of Technology Assessment, **Space Stations and the Law: Selected Legal Issues-Background Paper, OTA-BP-ISC-41 44-45**, p. 47.

[61] *See Tinsley* v. *Mills*, 36 F. Supp. 621, 623 (E.D. La. 1940) ("Where torts are committed in foreign countries, or beyond the territorial jurisdiction of the sovereignty in which the action is brought, the lex fori governs, no matter whether the right of action depends upon the common law or a local statute, unless the statute which creates or confers the right limits the duration of such right to a prescribed time.")

[62] *Phillips* v. *Eyre* (1870) L.R. 6 Q.B. 1, 28-29, *quoted in* P. B. Carter, "Choice of Law in Tort: The Role of the Lex Fori," **Cambridge Law Journal** [online] 54, 1 (March 1995): 38. source https://www.jstor.org/stable/4508032

[63] Albert A. Ehrenzweig, "The Lex Fori: Basic Rule in the Conflict of Laws," **Michigan Law Review** [online] 58, 5 (March 1960): 671-683. source https://www.jstor.org/stable/1285822

to *lex loci delictus*, Carter views it as general rule and views *lex loci delictus* as the exception as indicated in *Boys* v. *Chaplin*.[64]

Lex fori also applies when tort action occurred in the high sea[65] which is *terra nullius* ("territory not capable of being claimed by any single State, for example, the high seas and outer space.")[66]. Therefore, it could be considered that in outer space, which is also *terra nullius*[67], *lex fori* should also apply to tortious acts in outer space.

2.3) The rule of most significant relationship

The rule of most significant relationship seems to be the less harsh than the previous two doctrines. In *Grupo Televisa, S.A.* v. *Telemundo Commc'ns Grp., Inc.* (2007)[68], the Court mentioned four contacts or factors from the Restatement (Second) of Conflict of Laws § 145 (1971) that need to be considered in determining which state's law should apply:

"*(a) the place where the injury occurred, (b) the place where the conduct causing the injury occurred, (c) the domicile, residence, nationality, place of incorporation and place of business of the parties, and (d) the place where the relationship, if any, between the parties is centered.*"[69]

This principle is flexible and would be proper to be used as a model rule to deal with tort case in outer space. Anyhow, not every country adopted this principle in its domestic law on choice of laws rules.

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[64] *Boys* v. *Chaplin* [1971] AC 356, *quoted in* P. B. Carter, "Choice of Law in Tort: The Role of the Lex Fori," **Cambridge Law Journal** [online] 54, 1 (March 1995): 38. source https://www.jstor.org/stable/4508032

[65] USLegal, **Laws Applicable to Torts**.

[66] Tim Hillier, **Sourcebook on Public International Law**.

[67] Ibid.; Bin Cheng, **Studies in International Space Law**, p. 229.

[68] Grupo Televisa, S.A. v. Telemundo Commc'ns Grp., Inc., 485 F.3d 1233, 1240 (11th Cir. 2007).

[69] The American Law Institute, "Restatement (Second) of Conflict of Laws Section 145 [online]", published 1971, 10 December 2018. source http://www.kentlaw.edu/perritt/conflicts/rest145.html

2.4) Governmental interests approach

The main idea is that the law of the forum state should be mainly applied, unless there is a positive reason to replace it. Such practice emphasizes the importance of the forum state's policy and sovereignty.[70] This means foreign law can be applied if there is a positive reason which means "*the court seeks to identify and apply the law of the state whose interest would be the more impaired if its law were not applied*"[71] This approach was also adopted by the Oregon Supreme Court in 1964.[72]

2.5) Party Autonomy

Another good example from the civil law system country, the Civil Code of the Russia Federation imposes more flexible regulations than the Restatement does. Part III of the Code contains a set of rule which allows parties to choose their applicable law.

"*Article 1219. The Law Governing Obligations Emerging as a Result of Infliction of Harm*

3. After the committing of an action or onset of another circumstance that entailed infliction of harm the parties may come to an agreement that the obligation that has emerged as a result of infliction of the harm is to be governed by the law of the country of the court."[73]

Such party autonomy in the Russian Law was drawn from the Regulation (EC) No 864/2007 of the European Parliament and of the Council of 11 July 2007 (Rome II). Article 14 of the Rome II also recognizes that parties may conclude their agreement to choose their applicable law for their case

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[70] Robert A. Christensen, "Oregon Adopts Governmental Interest Approach to Choice of Law: Conflict of Laws. Guardian and Ward," Stanford Law Review 17 [online], 4, (April 1965): 752. source https://www.jstor.org/stable/pdf/1227368.pdf?refreqid=search%3A7866fd48d526d601a8151f600e5d94a2

[71] USLegal, **Government Interests Approach** [online], 10 December 2018. source https://conflictoflaws.uslegal.com/laws-applicable-to-torts/government-interests-approach/

[72] Robert A. Christensen, "Oregon Adopts Governmental Interest Approach to Choice of Law: Conflict of Laws. Guardian and Ward," p. 750.

[73] World Intellectual Property Organization, "Civil Code of Russia" art. 1219.

even after the damage occurred.[74] This practice was also adopted in some other European countries like Germany, Belgium, Lithuania, and Switzerland. Some countries, namely Austria, Liechtenstein, and Netherlands, even allow the parties to choose their applicable law both *ex ante* and *ex post* (before and after the injury occurred).[75] This principle was also supported by the Legal Subcommittee expressed that parties may also conclude an agreement to choose their applicable law to claim the damage under the 1972 Space Liability Convention[76].

3. Applications of Laws and Remaining Problems

This topic indicates applications of the international laws and domestic tort laws to four potential incidents that could be occurred in outer space. The author categorized those incidents based on tort-feasors. Also, remaining problems are presented here.

3.1) Damage caused by the State or the State's entity

This type of damage is definitely covered by the international space laws which are the 1967 Outer Space Treaty and the 1972 Space Liability Convention.

Under the 1967 Outer Space Treaty, the States shall bear international liability for their national activities which include launching or procuring the launching of an object into outer space, including the moon and other celestial bodies, and being a State Party from whose territory or facility an object is launched, if such activities caused damage to another States Parties to the Treaty, regardless of such conducted activity was private spatial act (*acta jure*

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[74] European Union Law, "Rome II," art. 14

[75] Thomas Kadner Gazano, "Freedom to Choose the Applicable Law in Tort – Article 14 and 4(3) of the Rome II Regulation [hereinafter Freedom to Choose the Applicable Law]," in **The Rome II Regulation on the Law Applicable to Non-Contractual Obligations: A New Tort Litigation Regime**, edited by John Ahern and William Binchy, (Brill | Nijhoff: Leiden, 2009), pp. 114-115.

[76] United Nations Office for Outer Space Affairs, "Legal Subcommittee Report of 1969."

gestionis) or Public spatial act (*acta jure imperii*) of the States that caused damage to another States or their personals.

The States also have duty to make sure that all space activities in their territory, regardless of whether they are operated by the States or not, are being conducted properly under Article VII of the Treaty.

The 1972 Space Liability Convention repeatedly enumerates the same principle as stipulated in the 1967 Outer Space Treaty. The States, as launching States, shall absolutely bear liability on damage from their activities. However, the Convention is likely not to cover damage from laser or particle beam weapon fired into outer space from ground-based weapons since the Convention deals with only damage from 'space objects' which is not properly defined by the Convention.

It is too remote to conclude that there is a feasibility to regard 'direct-energy weapon attack' like laser or particle beam as a 'space object'. In term of 'space debris', even though there is no official resolution from the U.N. General Assembly, some scholars view that space debris should be considered as space debris even though some country might have hundreds pieces of debris from its one satellite and the quantity is extremely high which is difficult to remove. Timothy G. Nelson referred in his article, '*Regulating the void: In-orbit collisions and space debris*', scholarly opinions of Bin Cheng and Manfred Lachs that consistently expressed that "*a space object is any object to be placed in orbit as a satellite of the earth, the moon or any other celestial body to traverse some other course to, in or through outer space*."[77] According to such opinion, Nelson interprets that the term 'space object' in the 1972 Space Liability Convention and the term 'object launched into space' in the 1967 Outer Space Treaty should include 'space debris'.[78]

Nelson, in order to argue that states should be responsible for space debris, furthermore pointed out more rationale rather than interpreting the term 'space object'. He rose up the opinion of Howard Baker who embraces customary international law together with the 1967 Treaty's provision. He views

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[77] Timothy G. Nelson, **Regulating the void: In-orbit collisions and space debris**.

[78] Ibid.

that the decision rendered by the International Court of Justice in the *Corfu Channel* case (1947), stated that "*A State is thus obliged to use all the means at its disposal in order to avoid activities which take place in its territory, or in any area under its jurisdiction, causing significant damage to the environment of another State*", should be applied together with Article VI[79] of the 1967 Outer Space Treaty. Hence, States are responsible to take a due diligence to protect other states as well.[80]

Since the 1972 Convention appears to impose only strict liability doctrine on the States and international organizations,[81] the issue needs to be considered is that whether it is really fair to apply only this doctrine to damage from space objects. As indicated in the 2009 incident which the United States' object and the Russian object hit with each other and both two objects were damaged, who will have to be liable if we apply strict liability doctrine? We can see from such case that both satellite operators were likely equal in technical knowledge. It would not make much sense to apply the doctrine of strict liability if the relationship is not of between technical service provider and service user, like in case of space travel that tour providers agree to carry passengers to travel into outer space.

Hence, it would be more proper to say that strict liability should be merely used in the case of space tour. In other types of space activities, fault liability doctrine should be still applied to prove which party has greater responsibility than another. The details are deeply examined in the fifth Chapter.

Finally, another point in international space laws is that while foreign individuals are entitled to exercise their right under Article VII of the 1967 Outer Space Treaty[82] to claim the compensation from launching States under Article II

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[79] United Nations Office for Outer Space Affairs, "Outer Space Treaty," art. VI.

[80] Timothy G. Nelson, **Regulating the void: In-orbit collisions and space debris**.

[81] U.S. Congress, Office of Technology Assessment, **Space Stations and the Law: Selected Legal Issues-Background Paper, OTA-BP-ISC-41 44-45**, p. 45.

[82] United Nations Office for Outer Space Affairs, "Outer Space Treaty," art. VII.

of the 1972 Liability Convention[83], Article VII of the 1972 Liability Convention blocks the way for individuals who were damaged by their government or state to claim the compensation through the Convention.

"*Article VII: The provisions of this Convention shall not apply to damage caused by a space object of a launching State to:*

(a) nationals of that launching State;

(b) foreign nationals during such time as they are participating in the operation of that space object from the time of its launching or at any stage thereafter until its descent, or during such time as they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching State."[84]

Tort law system is able to deal with States' tortious acts in outer space, but not with every state's acts. Only State Parties to the United Nations Convention on Jurisdictional Immunities of States and Their Property shall be waived their immunity by consequence of Article 12 of the Convention.[85] Non-parties States might hold their absolute immunity (the immunity claimed by States to prevent from being a defendant before foreign courts.)[86] to prevent against being litigated under another state's jurisdiction.

3.2) Damage Caused by International Organization

In this regard, international organization means inter-governmental organization. As discussed before, international organizations can bear international liability under the 1967 Space Treaty. But when it comes to the 1972 Space Liability Convention which officially established the channel for

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[83] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972," art. II.

[84] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972," art. VII.

[85] United Nations, "United Nations Convention on Jurisdictional Immunities of States and Their Property, adopted 2 December 2004 [hereinafter States Immunities Convention] [online]", arts. 5 and 12, 10 December 2018. source https://treaties.un.org/doc/source/RecentTexts/English_3_13.pdf

[86] Xiaodong Yang, **State Immunity in International Law**, 1st edition (London: Cambridge University Press, 2012), p. 7.

compensation claiming, it says that an international organization shall be liable only when it declare its acceptance of the rights and obligations provided for in the 1972 Convention. Some of the super power States, in order to avoid the liability, may conduct space activities under an international organization without such declaration.

International organizations can also claim their immunity although there is no customary international law provides immunity to international organization[87]. International organizations can have immunity from their establishing treaty or convention[88]. Furthermore, some countries' domestic laws, policy, or foreign policy also recognize and protect immunity of international organizations. Austrian, in 1977, enacted the *Federal Act on the Granting of Privileges and Immunities to International Organizations* which allows the Austrian government to grant immunities to international organizations by governmental agreement.[89] In Belgian, international organizations can enjoy their immunities by agreements between organizations and host state.[90] Such immunities are more absolute than state immunity.[91] This means international organizations may not be sued in the courts based on both their tortious private acts (*acta jure gestionis*) and tortious public acts

[87] Michael Wood, "Do International Organizations Enjoy Immunity Under Customary International Law?," in **Immunity of International Organizations**, edited by Niels M. Blokker, (Brill | Nijhoff: Leiden, 2015), page 30.

[88] Ibid.; Federal Department of Foreign Affairs of Switzerland, **Immunity of International Organisations** [online], 10 December 2018. source https://www.eda.admin.ch/eda/en/home/foreign-policy/international-law/privileges-and-immunities/immunity-international-organisations.html

[89] Kirsten Schmalenbach, "Austrian Courts and the Immunity of International Organizations," in **Immunity of International Organizations**, edited by Niels M. Blokker, (Brill | Nijhoff: Leiden, 2015), p. 193.

[90] Eric De Brabandere, "Belgian Courts and the Immunity of International Organizations," in **Immunity of International Organizations**, edited by Niels M. Blokker, (Brill | Nijhoff: Leiden, 2015), p. 213.

[91] Ibid., p. 216.

(*acta jure imperii*). Such situation show the lack of proper legal standard dealing with tortious acts of international organizations in global stage.

As we have discussed that international organizations, if enjoy an immunity, enjoy immunity more absolute than states. The fact shows that every state tends to recognize immunity of international organizations base on foreign policy and foreign relationship. International organizations also obviously enjoy the immunity as provided in their establishing conventions that the organization and its staffs enjoy immunity. This situation prevents international organizations from falling into another state's jurisdiction and litigation in every case. So far, the author finds three inter-governmental space agencies, namely Intersputnik International Organization of Space Communications (Intersputnik), European Space Agency (ESA), and Asia-Pacific Space Cooperation Organization (APSCO). The ESA has already conducted numerous activities in outer space such as Ariane rockets, SOHO (Solar and Heliospheric Observatory) sun studying satellite, and Gaia galaxy mapping satellite.[92] Meanwhile the APSCO is also capable to conduct activities in outer space, but it has not conducted any space activities so far.

3.3) Damage Caused by Private Sectors under The State's Authorization and Continuing Supervision

Under the 1967 Outer Space Treaty, private sectors can bear international responsibility only when they conduct national activities mentioned in Article VI.

Although the 1972 Space Liability Convention was concluded based on the principle from the 1967 Outer Space Treaty, but it conversely does not mention that private sectors or non-governmental entities shall bear liability and pay compensation under this Convention. Only the States shall be able to bear liability for all activities conducted in their territory and cause damage to another State. Hence, although private sectors or non-governmental entities

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[92] European Space Acency, **Our Missions** [online], 10 December 2018. source http://www.esa.int/ESA/Our_Missions; Elizabeth Howell, **European Space Agency: Facts & Information** [online], 10 December 2018. source https://www.space.com/22562-european-space-agency.html

shall bear international responsibility from their national activities under Article VI of the 1967 Treaty, the 1972 Space Liability Convention does not force them to pay compensation directly to injured persons. The method, so far, seems to be that the States must pay first and recourse from such private entities later. However, the problematic issue is which law can be referred as the ground for the Sates to get reimbursement from private entities. Using domestic tort laws to allow the States to claim back the money might not be so easy since not every state's tort law allows its government to claim money back from private entities specifically based on damage from national space activity. To illustrate this, Thailand's tort law allows employer to get reimbursement back from his employee if such tortious act was conducted under a 'hire of services' agreement, but not under a 'hire of works' agreement, unless the employer gave the employee instruction but the employee failed to follow it.[93] If, for instance, Thai government had to pay compensation under the 1972 Liability Convention because damage caused by its employee, the government would not be able to claim back the reimbursement if it concluded 'hire of works' agreement with the employee due to nature of activity.

Let's take a look at another sample from the Civil Code of Russia Federation. According to Article 1068, it appears to be that an employer has to pay the compensation for damage caused by his employee if the act was done based on civil contract and his employee did not comply with his instruction.[94] This article seems to be able to apply with a case of a government agency hired an individual to operate space activity as a private act (*acta jure gestionis*) since the Article aims at relationship between the contractors, not their statuses.

Next Article of the same Code also provides the same situation, but in a case of unlawful actions caused by state and local self-government bodies, or officials. In this regard, the Russian Treasury shall pay the compensation.[95] The

[93] Siam Legal, "Thai Civil and Commercial Code."

[94] World Intellectual Property Organization, "Civil Code of Russia", art. 1068.

[95] Ibid., art. 1069.

inflicting or tortious act in this Article seems to mean a public act (*acta jure imperii*).

With respect to the two Articles mentioned above, the Russian Civil code, in first paragraph and fourth paragraph of Article 1081, together, allow "*a person who has redressed the injury inflicted by another person (the employee who discharges official or other labour duties, the person who drives a transport vehicle, etc.) shall have the right to recourse to this person in the amount of the paid compensation, unless the law establishes a different amount of compensation*."[96] According to the Russian Civil Code, in any case, the Russian Government seems to be able to recourse from its national who caused damage in outer space after the government has redressed for such damage. This is the one sample that is quite different from Thai tort law as previously mentioned.

Another potential problem would be any damage occurred from space tourism. This sounds little futuristic, but it has been happened before in 2001 when Russia sent Dennis Tito, an American businessman to the International Space Station. The similar tours were happened also with other two businessmen, Mark Shuttleworth and Greg Olsen, in 2002 and 2005, respectively.[97] Recently, 23 people were sent into outer space in 2013 for an hour for traveling because they won the free space trip award from AXE Company.[98] The idea of traveling to outer space, if it becomes popular, it needs huge financial support from private sectors and would be operated by private sectors under a government's supervision. Since there is the idea and effort to make it happens, pointed out by Kevin Bonsor,[99] this activity is

[96] Ibid., art. 1069.

[97] Kevin Bonsor, **How Space Tourism Works** [online], 10 December 2018. source https://science.howstuffworks.com/space-tourism.html

[98] Miriam Kramer, **23 Axe Apollo Fans with the Right Stuff Win Free Space Trips** [online], 10 December 2018. source https://www.space.com/23866-axe-apollo-space-academy-spaceflight-winners.html; Julietta, **Phirada Dechavijit: First Thai Woman in Outer Space [พิรดา เตชะวิจิตร์ หญิงไทยคนแรกบนห้วงอวกาศ]** [online], 10 December 2018. source https://women.mthai.com/amazing-women/162837.html

[99] Ibid.

definitely going to be private acts (*acta jure gestionis*), like the trip organized by AXE Company in 2013, Even though the 1972 Space Liability Convention can force a government to pay compensation for damage caused by space tour company in its territory, but there is no legal instrument provide that a government is entitled to the reimbursement. Problem will also arise if a government is forced to pay compensation under the international space laws in such cases but cannot get money back, while the private entity that caused damage can also be forced to pay compensation directly, under domestic tort law, for the same damage that its government has been already paid for.

3.4) Damage Caused by Individuals

The two international space laws were not written on purpose of punishing individuals. They do not impose civil liability on individuals nor non-governmental entities that caused damage in outer space. They were written mainly to control States' space activities by applying the doctrine of 'strict liability' which is consistent with the idea saying that space activities fall into the category of normally dangerous activities (sometimes referred as 'ultra-hazardous activities').[100] On the other hand, normal tortious acts in outer space, if conducted by individual, the doctrine of 'fault liability' should be applied, but the 1972 Space Liability Convention nevertheless does not mention about this.[101]

However, regular tort law mechanism is still available to cope with this kind of damage.

3.5) Problems Summary

In sum, problems stemmed out from current legal instruments are as follows:

a) The international space laws apply only 'strict liability' doctrine to damage from outer space objects conducted mainly by States. The 1972 Liability Convention does not separately consider between damage caused by

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[100] Cornell Law School, **Ultrahazardous Activity** [online], 10 December 2018. source https://www.law.cornell.edu/wex/ultrahazardous_activity

[101] U.S. Congress, Office of Technology Assessment, Space Stations and the Law: Selected Legal Issues-Background Paper, OTA-BP-ISC-41 44-45, p. 45.

individuals that ‘fault liability’ doctrine should be applied, and damage caused by space activities that ‘strict liability’ doctrine should be applied. However, in fact, not all space activities should be governed by strict liability doctrine.

tortious acts from

The international space laws do not apply to individuals’ tortious acts, their civil liability, and the doctrine of ‘fault liability’ that should be applied to the cases. The laws only apply ‘strict liability’ doctrine in order to mainly deal with States’ space activity.

b) No clear definition of the term ‘space object’ in the 1972 Space Liability Convention.

c) No clear definition of the term ‘national activity’ in the 1967 Outer Space Treaty.

d) The States must bear liability on paying of compensation under the 1972 Space Liability Convention although the damage caused by private entities, and there is no clear legal mechanism allowing the States to recourse the reimbursement.

e) Foreign individuals are entitled to exercise their right under Article VII of the 1967 Outer Space Treaty because launching states shall be internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons.[102] Theoretically, injured persons should be able to claim the compensation from launching States under Article II of the 1972 Liability Convention. However, Article VII of the 1972 Liability Convention[103], which provides the method of such claim, forbids individuals who were damaged by their government or their state to claim the compensation through the Convention.

f) International organizations shall be liable under the 1972 Space Liability Convention only when they have declared to accept the rights and obligations provided for in the Convention.

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[102] United Nations Office for Outer Space Affairs, “Outer Space Treaty,” art. VII.

[103] United Nations Office for Outer Space Affairs, “Space Liability Convention of 1972,” art. II.

g) Tort law system cannot definitely deal with States and international organizations' tortious acts in outer space because of the immunity.

Chapter 4: Problems of Using Transnational Tort Litigation System on Tort Occurred in Outer Space & Protection of Space Activities in Thailand

1. Space Activities in Thailand

At the present time, there are some organizations in Thailand operating or aiming at operating space activities in outer space.

Geo-Informatics and Space Technology Development Agency (GISTDA) is a public organization established on purposes of developing geo-informatics and space technology as non-boundary knowledge for the country development.[104] A sample achievement is the Cosmo-SkyMed satellites – "Constellation of four radar satellites for Earth observation for dual (civil and military) use. Its purpose is to monitor the globe for the sake of emergency prevention (management of environmental risks), strategy (defense and national security), and scientific and commercial purposes, providing data on a global scale."[105]

Royal Thai Air Force also aims at using outer space as an area for security operation under the Space Affair Development for Security Project. The Air Force proposed to have a capability to conduct Space Observation, Space Surveillance and Space Defense.[106]

Thaicom is Thai public company limited. It "provides tailored satellite communications solutions on an end-to-end basis for broadcasters, the telecom industry and mobile network carriers, businesses and governments

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[104] Geo-Informatics and Space Technology Development Agency, **Corporate information** [online], 10 December 2018. source https://www.gistda.or.th/main/en/node/265

[105] Geo-Informatics and Space Technology Development Agency, **Cosmo-SkyMed** [online], 10 December 2018. source https://www.gistda.or.th/main/en/node/579

[106] Royal Thai Air Force, "Royal Thai Air Force's 20 Years Strategy (2017-2036) [ยุทธศาสตร์กองทัพอากาศ 20 ปี (พ.ศ. 2560 - 2579)] [online]", 10 December 2018, pp. 16-17., source http://www.rtaf.mi.th/th/Documents/Publication/RTAF_Strategy_20y_2560-2579.pdf

operating in the Asia Pacific Region."[107] It has launched 8 THAICOM satellites to provide broadcasting service.[108]

Mu Space Corp is a limited company. It "delivers reliable satellite-based broadband, mobile and broadcasting solutions for telcos and businesses in Thailand."[109] On July 2018, it recently successfully launched its satellite with a reusable rocket from Blue Origin Company of the United States.[110]

These agencies operate important space activities which are significantly important to Thai people's interest. Thus, they need fair and reasonable protection which is able to guarantee that they will be able to operate their activity smoothly and get recovered from unexpected damages occurred in outer space.

2. Potential Risks and Proposed Legal Solutions for Thai Space Agencies

Similarly, as discussed in the previous Chapter, Thai space agencies may face with the same legal difficulties. The author analyzed the potential incidents that could happen and divided in four categories. Moreover, the author offers here each incident legal solutions based on international laws, domestic laws, and diplomatic action perspectives.

2.1) Damage caused by the State or the State's entity

International Space Laws

Article VI of the 1967 Outer Space Treaty[111] imposes the duty to State actors to bear international responsibility for national activities. However, the Article VII[112] emphasizes that a State who launched an object into outer space

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[107] THAICOM, **Services Overview** [online], 10 December 2018. source http://www.thaicom.net/en/services/overview

[108] THAICOM, **Satellites Overview** [online], 10 December 2018. source http://www.thaicom.net/en/satellites/overview

[109] mu Space Corp, **About** [online], 10 December 2018. source https://www.muspacecorp.com/about/

[110] mu Space Corp, **mu Space makes history for Asia with successful Blue Origin flight** [online], 10 December 2018. source https://www.muspacecorp.com/mu-space-makes-history-for-asia-with-successful-blue-origin-flight/

[111] United Nations Office for Outer Space Affairs, "Outer Space Treaty," art. VI.

[112] United Nations Office for Outer Space Affairs, "Outer Space Treaty," art. VII.

is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons, regardless of whether such launching was a national activity or public act (*acta jure imperii*). Hence, it appears to be that the State Parties shall be also internationally liable even they caused damages from conducting spatial private acts (*acta jure gestionis*).

In practical, in order to enforce the principle manifested, Article II of the 1972 Space Liability Convention[113] need to be used to claim for compensation from the damages. An injured state or a state that its natural or juridical persons get injured may claim for compensation, according to the Article IX[114], through diplomatic channels or through the Secretary-General of the United Nations. However, this claim will be absolutely fruitful only if the damage concerned was caused by a 'space object' which we, so far, don't exactly know whether or not this term is fit with 'direct-energy weapon attack' and 'space debris'. As previously discussed, nobody discusses or publishes any work on the 'direct-energy weapon attack' issue relating to 'space object' before, but some scholars contend that the term includes 'space debris' and injured persons from space debris seems to be entitled to claim for compensation through the international laws. The author agrees with this idea, since the 1972 Convention applies 'strict liability doctrine', and the Convention does not consider intention to cause damage nor possession of an object during damage is being occurred. However, claiming compensation for damage caused by a state's space debris will lead to uncertain legal consequence. However, the author agrees that space debris is also a 'space object' as described in the 1972 Convention even though there is still nobody has claimed for damage caused by space debris so far.

Tort Laws

Bringing an action under Thai domestic tort laws is also another way to claim for compensation. The advantage of using Thai domestic tort laws is that

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[113] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972," art. II.

[114] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972," art. XI.

tort laws basically protect injured persons based on damage they have suffered from unlawful tortious acts, regardless of whether or not such acts were conducted through space objects. This is a good way to avoid the interpretable term like the 'space objects' used in the 1972 Convention. The author views that damage caused by directed-energy weapons can be recovered by domestic tort laws. In case of damage occurred from space debris, the author views that section 420 of the Civil and Commercial Code is also applicable.

The damage as such could fall into damage caused by a negligent tortious act, if the debris can be proved where it came from.

As previously described, the 1972 Space Liability Convention prevents against persons to claim for compensation from damage caused by their government or their state. Thus, Thai individuals suffered from Thai government's space activities are not able to access to the channel provided in the Convention. However, they may use Thai domestic tort law to claim for compensation. Additional to section 420 of the Civil and Commercial Code of Thailand as previously mentioned, the Act on Tortious Liability of Officials B.E. 2539 also allows injured persons to directly bring an action against the government agency that caused damage.[115]

To bring an action by using Thai domestic tort laws, injured persons can use section 4 ter of the Civil Procedure Code of Thailand.[116]

2.2) Damage caused by International Organizations

International Space Laws Although the 1967 Outer Space Treaty and the 1972 Space Liability Convention impose responsibility and liability on international organizations, but such kind of organizations shall be liable only when they have declared their acceptance of the rights and obligations

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[115] Krisdika, "Act on Tortious Liability of Officials B.E. 2539 (1996) [online]", 6 March 2019, Section 5, source http://120.52.51.19/www.krisdika.go.th/wps/wcm/connect/e7782a804e34cce9be73fff7e6da8c7c/Act+on+Tortious+Liability+of+Officials,+B.E.+2539+(1996).pdf?MOD=AJPERES&CACHEID=e7782a804e34cce9be73fff7e6da8c7c

[116] International Money Laundering Information Network (IMOLIN), "Civil Procedure Code of Thailand [online]", 10 December 2018, Section 4 Ter, source https://www.imolin.org/doc/amlid/Thailand_The%20Civil%20Procedure%20Code.pdf

provided for in the 1972 Convention.[117] Thus, if an injured Thai entity would like to claim for compensation against an international organization, such organization much accept the rights and obligations under the 1972 Convention. Heretofore, the author finds that the Intersputnik International Organization of Space Communications (Intersputnik) is the only international organization which accepted so.[118]

However, even though it appears to be almost impossible to claim the compensation directly from international organizations, injured Thai entities may claim such compensation from "*a State from whose territory or facility a space object is launched*" that is covered as a second meaning of 'launching State' in Article I(c) of the 1972 Space Liability Convention and shall be liable as well as the launching authority under the Article II.

Tort Laws

To bring tort litigation against an international organization that does not accept the rights and obligations under the 1972 Convention, the injured entities must be sure that the organization is free from absolute immunity. The author finds that the European Space Agency (ESA) is the only international space agency that its immunity can be waived under its founding convention, Article IV.[119]

Thus, so far, claiming for compensation against international organizations seems not to be systematized. An injured person has to examine whether or not the organization he want to bring an action against has (1) accepted the rights and obligations under the 1972 Convention, or (2) waived its absolute immunity under domestic courts.

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[117] United Nations Office for Outer Space Affairs, "Space Liability Convention of 1972," art. XXII.

[118] United Nations, "Declaration of Acceptance by the Intersputnik International Organization of Space Communications, declared 11 July 2018 [online]", 10 December 2018. source https://treaties.un.org/doc/Publication/CN/2018/CN.330.2018-Eng.pdf

[119] European Space Agency, **CONVENTION FOR THE ESTABLISHMENT OF A EUROPEAN SPACE AGENCY** [online], 10 December 2018. source http://www.esa.int/About_Us/Welcome_to_ESA/I._Privileges_and_immunities

2.3) Damage Caused by Non-governmental Organization under the State's Authorization and Continuing Supervision

International Laws

Under the 1967 Outer Space Treaty, private sectors can bear international responsibility only when they conduct national activities mentioned in Article VI.

Although the 1972 Space Liability Convention was concluded based on the principle from the 1967 Outer Space Treaty, but it does not mention that private sectors or non-governmental entities shall bear liability and pay compensation under this Convention. Only the States shall be able to bear liability for all activities conducted in their territory and cause damage to another State. Hence, if damage was caused on a space object of Thai entities by private sectors which was supervised or authorized by foreign governments, the only way here which is internationally legal is that the injured entities may request Thai government to claim for compensation through diplomatic channels or through the Secretary-General of the United Nations, as the method provided in Article IX of the 1972 Space Liability Convention.

Thailand should have a particular domestic regulation establishing a procedure of such requesting, claiming, and paying the reimbursement.

Tort Law

Private sectors are basically non-state actors. They enjoy no state immunity by themselves, unless there is a law provides so. The 1967 Outer Space Treaty requires a State to supervise and authorize non-governmental organization in space activities. The law does not touch upon the issue of immunity nor specify characteristic of relationship between a non-governmental organization and its supervisor or authorizer. Thus, injured Thai entities are still entitled to bring tort litigation against these organizations for damage occurred in outer space according to Section 4 *ter*. of the Civil Procedure Code of Thailand[120] and Section 3 of the Conflict of Laws Act.[121]

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[120] International Money Laundering Information Network (IMOLIN), "Civil Procedure Code of Thailand", Section 4 Ter.

[121] THAILAWS.COM, "Conflict of Laws Act B.E. 2481 (1938), Section 3.

We can see that there are two ways to deal with damage in outer space caused by non-governmental organizations. However, in case of damage caused by space debris, injured Thai persons may claim either through Thai domestic courts or through the channel provided by the 1972 Convention.

2.4) Damage Caused by Individuals

International Laws

Unfortunately, the international space laws, as previously discussed, impose no civil liability on pure individual's tortious acts. As such, injured Thai entities or individuals (like astronauts) are not able to get recovered through international space laws in this case.

Tort laws

Injured Thai entities may exercise their rights through regular tort litigation mechanism by relying on the Civil and Commercial Code of Thailand and the Conflict of Laws Act B.E. 2481(1938). Although damages were caused in outer space that is *terra nullius* and free from national sovereignty which makes the *lex loci delicti* under Section 15 of the Act cannot be applied, but since injured entities are Thai national, Section 3 of the Act leave a threshold for Thai law to govern the cases.

The Section 3 allows using of 'principles of private international law' when no Thai conflict of laws rule can be found and fit with the cases. Thus, 'the rule of most significant relationship' from the Restatement (Second) of Conflict of Laws § 145 (1971) should be considered.[122] Under this rule, Thai courts may consider "*the domicil, residence, nationality, place of incorporation and place of business of the parties*" to choose the applicable law which could be Thai law.

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[122] The American Law Institute, "Restatement (Second) of Conflict of Laws Section 145."; Niti Janjirasakul, "Conflict of Laws on Tort among the ASEAN States [การขัดกันแห่งกฎหมายว่าด้วยละเมิดในกลุ่มประเทศอาเซียน] [online]," (Thesis submitted for the master of laws degree in international laws, Faculty of Laws, Thammasart University, 2015), 10 December 2018, pp. 78-79. source http://ethesisarchive.library.tu.ac.th/thesis/2015/TU_2015_5601032583_4092_3280.pdf

The courts shall also consider the Civil Procedure Code of Thailand together with the Conflict of Laws Act in order to assure that the Thai Civil Court has jurisdiction on the cases. In this regard, Section 4 *ter*. of the Civil Procedure Code of Thailand is taken into account.

"*Section 4 ter. – The other plaint as provided other than Section 4 bis. which the defendant is not domiciled within the Kingdom and the cause of action is not arose within the Kingdom, if the plaintiff has Thai nation or domicile within the Kingdom, it shall be submitted to the Civil Court or to the Court within the territorial jurisdiction oh which the plaintiff is domiciled.*"[123]

Chapter 5: Conclusion

Even though space technology and space activities have been significantly being developed since the Cold War period[124], but space law regime are being developed slower than space technology. It would be unfair and impartial if we cannot sustain justice to people who deserve their right, and cannot claim for their loss or have to let them face with multi-legal standards.

The author believes that every damage and loss caused by intention, negligence, or lack of care in space operation, is supposed to be recovered. New legal instrument in international level is supposed to be developed to invite all states to use tort law mechanism to recover damages caused in outer space, set up an agreed conflict of laws rules, and waive unreasonable immunities of states and international organizations. Damages from all activities in outer space, including individual's tortious acts, space debris, directed energy weapons, and space traveling must be covered. Also, new legal instrument should impose strict liability to only space traveling activity since it requires high responsibility of carriers toward passengers and passengers generally are not able to relieve harm by themselves, while other types of space activities

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[123] International Money Laundering Information Network (IMOLIN), "Civil Procedure Code of Thailand [online]", Section 4 Ter.

[124] Matthew Godwin, **The Cold War and the Early Space Race** [online], 10 December 2018. source http://www.history.ac.uk/ihr/Focus/cold/articles/godwin.html

appears to be conducted among technicians who have equal knowledge and are capable to avoid or deal with damages.

The author hopes the opinions and suggestions offered in this article would be a helpful primary guideline for Thailand's space agencies and private space industries to be ready in case that tort action occurred. Moreover, the author strongly hope that the ways forward to develop new legal instrument previously mentioned would influence persons who read them, especially persons who are working in relevant fields, to move forward and carry out the spirit of justice for future.

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