TITLE PAGE

NAME OF AUTHOR: DR. KHAFAYAT OLATINWO

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AFFILIATED INSTITUTION: DEPARTMENT OF JURISPRUDENCE & PUBLIC LAW, FACULTY OF LAW, KWARA STATE UNIVERSITY, MALETE

EMAIL ADDRESS: khafayat.olatinwo@kwasu.edu.ng & khaffyolat@gmail.com

TELEPHONE NUMBER: +23408039221906

Mortgagor or Mortgagee? Liability for damage caused to space asset where a right of forfeiture goes wrong in outer space?

By

Khafayat Yetunde Olatinwo

Abstract

It is safe to conclude that parties are involved in contract almost every hour and on daily basis of human existence. Whatever the nature of such contract is or whatever the form it takes; the fact is that it is not strange for parties, be it private individuals, corporations, government agencies, NGOs and International organisations, to require certain obligations in return for certain benefits on both sides. The obligation is extended with series of covenants and conditions to the fulfillment of the terms of the agreement, the breach of which can entitle the injured party to seek variety of reliefs depending on the terms of agreement and lex situs. This concept is not strange in space related activities in spite of its unique nature and legal regimes upholding the environment as common heritage. As long as parties conform to the provisions of the regimes, outer space is free for exploration and exploitation therefore open to man's quest. Because of the huge financial commitment and obligations involved in space exploration, it would not be farfetched to see space actors seeking financial assistance from financial institution of other states and entering into a mortgage agreement to borrow huge capital to finance a particular space activity. This can take the form of finance lease or agreement to finance the launch, manufacture, maintenance or purchase satellite in orbit and almost always, the space asset/object as the security/collateral. In such cases a breach on the term of contract on the payment after several demands may entitle the mortgagee/creditor to exercise its forfeiture right, in this case, removal of the satellite from orbit. Because of the increase in satellite launch and the finite nature of the Geo Stationary causing satellites to cluster and collide, there is the possibility that the removal of a satellite may cause damage to another space object. The question is what happens when another space object or satellite belonging to another state or entity is damaged in the process of removing a satellite, subject matter of forfeiture? Who is liable for such damage, the mortgagor or mortgagee? The intention of this paper is not to discuss a contract of mortgage on space asset/object but rather to discuss the liability for damage that may be occasioned where the act of removal of a space asset/object for breach of contract caused damage to another satellite in orbit or even the forfeited satellite. The paper intends to examine the attitude of the space regimes on who is liable between the mortgagee, who is only observing his right to forfeiture or the launching party, who may not necessarily be the mortgagor, but is legally liable for damage caused to other space object through it space activity.

KEY WORDS: mortgage, space asset, forfeiture, damage, liability

1.0 Introduction

Ensured and enshrined in the space regimes[1] is the freedom to explore and exploit the usefulness of outer space to its fullest particularly for the benefit of mankind. Accordingly, the exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.[2] Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.[3]Hence space actors are given the freedom to explore and utilise space resources within the set limit in the space regimes regulating human activities in outer space.

As it is the nature of man to be inquisitive with the quest as to the ultimate gain in life coupled with the freedom on space exploitation, outer space resources, has been utilised in many ways. Since the beginning of space race between the United States and Russia in 1957[4] human beings have benefited from space-based program in telecommunication which ensures the use of GSM,

[1] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (the "Outer Space Treaty", adopted by the General Assembly in its resolution 2222 (XXI)), opened for signature on 27 January 1967, entered into force on 10 October 1967, The Convention on International Liability For Damage Caused By Space Objects (the Liability Convention" adopted by the General Assembly In Its Resolution 2777 (XXVI)) opened for signature On 29 March 1972, entered into force On 1 September 1972, The Convention On Registration Of Objects Launched Into Outer Space ('The Registration Convention'' adopted by the General Assembly in its Resolution 3235 (Xxix)), opened for signature on 14 January 1975 and entered into force on 15 September 1976, the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (the "Rescue Agreement", adopted by the General Assembly in its Resolution 2345 (XXII)), opened for signature on 22 April 1968, entered into force on 3 December 1968 & the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (the Moon Treaty)," adopted by the General Assembly in its Resolution 34/68), opened for signature on 18 December 1979, entered into force on 11 July 1984.

[2] Outer Space Treaty 1967, Article 1

[3] Ibid

[4]Adam Mann, 'what was the space race? Origins,events and timeline' Space.com (Bath City, 08 July 2022) <https://www.space.com/space-race.html> accessed 31 October 2022

GPS in the car, internet services and the ability to watch programs aired in another country on the television; science and technology, for instance, Canada leveraged on the success on her series of Canadaarm (MSS)[5] which was to contribute to ISS[6] to invent KidsArm and Canadaarm2, arm looking robots[7] that could perform surgeries thought unachievable thereby advancing in medicine, science, technology, and particularly artificial intelligence[8]; military reconnaissance, weather forecasting, Ariel navigation, environmental disaster and mitigation programs. These programs were achieved with space technologies through the launch of satellites and other space objects for different and unique purposes.

Obviously, at the point of the draft of the 5 major space treaties, the world community thought that space activities would only be engaged in by States without opening it mind to what space would become; the final frontier. Private individual business owners and corporations are now interested in space programs particularly entities in countries with public-private support space-programs.[9] With the likes of Jeff Bezos and Ellon Musk's investment plans,[10] lunar mining,[11] the

[5]Mobile Servicing System is a sophisticated robotic suite that plays a critical role in the assembly, maintenance and resupply of the space station <htpps://www.nasa.gov/mission_pages/station/structure/elements/mobile-servicing-system.html> accessed 31 October 2022 <https://wwwasc-csa.gc.ca/eng/iss/canadarm2/canadarm-canadarm2-canadarm3-comparative-table.asp> accessed 31 October 2022

[6]Elizabeth Howell, 'International Space Station: Facts about the orbital laboratory' Space.com (Bath City, 24 August 2022) <htpps://www.space.com/16748-international-space-station.html> accessed 31 October 2022

[7] Hailed as the first robotic to perform the handshake in space can perform maintenance, move assets, help dock space craft and support astronauts spacewalks <https://www.asc-csa.gc.ca/eng/iss/canadarm2/about.asp> accessed 24 October 2022

[8] 'Technology from Canada's most famous robot, Canadarm, to help Doctors care for Children' March 9, 2015, Toronto, Ontario, Canada News <https://www.canada.ca/en/news/archive/2015/03/technology-canada-most-famous-robot-canadarm-help-doctors-care-children-html> accessed 24 October 2022. Melissa Gaskill, 'From Orbit to Operating Rooms, Space Station Technology Translates to Tumor Treatment' NASA News (22 November 2013) <https://www.nasa.gov/mission_pages/station/research/news/neuro_canadarm> accessed 24 October 2022

[9]Michael Sheetz, ' The US government is helping get cash to private space companies, replacing frozen capital' CNBC (New Jersey, 24 April 2020) https://www.google.com/amp/s/www.cnbc.com/amp/2020/04/24/us-government-getting-cash-to-private-space-companies-replacing-venture-capital.html> accessed 31 October 2022. 'UK Space programmes and missions' GOV.UK (6 October 2022) <https://www.gov.uk/guidance/uk-space-programmes-and-missions> accessed 31 October 2022

[10]Christian Davenport, 'Elon Musk is dominating the space race. Jeff Bezos is trying to fight back' The Washinton post (Washinton, D.C, 10 September 2021) <https://www.washintonpost.com/technology/2021/09/musk-bezos-space-rivalry/ > accessed 31 October 2022

[11]Lewis Pinault, 'Mining the moon to help save the Earth (op-ed), space.com (Bath City, 10 May 2022) <https://www.space.com/mining-moon-save-life-earth-op-ed> accessed 31 October 2022

vision space hotel[12] and civilian space travel[13] now, it is suggested that these regimes should be reconsidered to expand space actors to the present realities.

As a result of the influx of private investors, the economic realities of space-based programs and the huge financial obligation involved in space activities, it is not out of place to find parties entering into contract for the sale, hire or loan for its space activities. Space related contract is not alien to space industries. The incidence of Westar-6 AND PALAPA-B2 informed the concept of conveyance of space object. These two insured space objects were launched into space by NASA space shuttle and destined for GSO but failed to reach its destination as a result of mechanical failure. These two Satellites were left hanging in low-earth orbit by their respective owner which made the insurance company deem the satellites as a complete loss. It paid the money accrued under the Insurance policies and obtained title to the Satellites as agreed between the parties. The insurance company then arranged for the Satellite to be brought back to the Earth, fixed, and then sold them. [14]This article is interested in contract of loans (The purpose of such loan could be finance lease, purchase, manufacture, launch and maintenance of space object.) where space assets are charged as security in the loan agreement or a separate mortgage agreement especially where the mortgagor defaults in payment, the mortgagee in exercising his right of forfeiture in orbit damages either the charged asset or a neighboring satellite. Hypothetically, *ScuriX, a space company based in the United Kingdom, who because of lack of fund to launch its new satellite, Scuri2, obtained financing from Asonbare Inc, a financial service company with Scuri2, which was eventually launched from US launch facility, charged*

[12] Joshua Chiedu, 'The World's First Space Hotel Is Opening Soon & Here's What To Know About It' THE TRAVEL (11 August 2022) <https://www.thetravel.com/what-to-know-about-the-first-space-hotel-in-the-world/> accessed 31 October 2022

[13]Scott Dutfield & Vick Stein, 'Inspiration4: The first all civilian spaceflight on SpaceX Dragon' Space.com (Bath City, 05 January 2022) <https://www.space.com/inspiration4-spacex.html> accessed 31 October 2022

[14] *When a Satellite circles close to Earth, it means it's in low Orbit* (LEO). Satellites in LEO are just 200-500miles (320-800 kilometers) high. The Tech Museum < http://www.thetech.org/exhibits/online/satellite/4/4a/4a.1.thml> accessed 15 August 2022

as security for payment. Upon default of payment and with several notice of demands, Asonibare Inc, decided to exercise its right of forfeiture under the mortgage which has arisen upon default by removing Scuri2 from orbit and bringing it back to earth through UKarm, a space company satellite based in UK. As UKarm grabbed Scuri2 with its strong arm, Scuri2's fuel line ruptured, exploded and hit another satellite, Niger7, belonging to Nigeria, which also got damaged. The article intends to analyse the relevant international space treaties in order to determine who is liable for the damage caused.

2.0 Space object v. Space asset

It is apposite to briefly clarify what a space object or space asset is under this heading in order to understand the object and subject of damage to which its liability is the bane of this article. Most importantly where the major space regimes use the term 'space object' while the regimes[15] which recognises the act of charging these objects as security use the term 'space asset'. Simply put, be it space object or space asset the intention, definition or description in the all the regimes point to any man-made object which finds its way to outer space from the surface of the earth but excludes any object, including space resources, which finds its way to space by natural means but includes object manufactured or invented in space for the purpose of space activities. This description appear clearer to the definition given in the space regimes.

The Registration Convention[16]defines space object to "include component parts of a space object as well as its launch and parts thereof."[17] This same definition was repeated in the Liability Convention[18]while space object was used interchangeably with "object launched into outer

[15]Convention on International Interest in Mobile Equipment 2001 otherwise known as the Cape Town Convention and the Protocol to the Convention on International Interest in Mobile Equipment on Matters Specific to Space Assets 2012 otherwise known as 'Protocol on Matters Specific to Space Assets.
[16]Registration Convention 1975, Article I
[17]Article I
[18]1972, Art I

space" in the Rescue Agreement[19] According to Stephen,[20] component part of space object would include all element normally regarded as making up the space object, including fuel tanks and perhaps even the fuel itself.[21] It, therefore, means that all other objects in celestial bodies present by natural means are not space object, surprisingly though, the Moon Treaty which is also applicable to Outer Space does not cover celestial objects that found its way to the surface of the Earth by natural means.[22] Domestic legislations have tried to expand the list of what could be termed space object. For example, The Australian Space Activities Act[23] defines space object to mean "a thing consisting of (a) a launch vehicle and (b) a payload (if any) that the launch vehicle is to carry into or back from an area beyond the distance of 100km above mean sea level; or any part of such a thing, even if: (c) the part is to go only some of the way towards or back from an area beyond the distance of 100km above mean sea level, or (d) the part results from the separation of a payload or payloads from a launch vehicle after launch."[24] China's Measures for the Administration of Registration of Objects Launched into Outer Space defines the term "space object' to refer to an artificial satellite, crewed spacecraft, spacecraft, space probe, space station, launch vehicle and parts of thereof, and other human-made object launched into outer space." It further provides that "the sounding rocket and Ballistic missile that temporarily crosses outer space shall not be regarded as a space object."[25] Obviously, this provision does not consider any object which is not intended to be permanent in space as a space object. The United States,

[19]1968, Art 5

[20]Stephen Gorove was a space law writer. 'Resources: Stephen Gorove Collection' Center For Air & Space Law <https://airandspacelaw.olemiss.edu/team/resources/stephen-orove/> accessed 31 October 2022

[21]Stephen Gorove, "*Studies in Space Law: Its Challenges and Prospects*" (Leyden, Netherlands; Reading, Mass: A.W Sijthoff 1977) Pg105

[22]Moon Treaty 1979, Art 3(3) "This Agreement does not apply to extraterrestrial materials which reach the surface of the earth by natural means" See also the "Report of the 53rd Conference of the International Law Association, Buenos Aires, 1968." at Pg 81-102 and 170-186

[23]An Act about Space Activities and for Related Purposes. Act No. 123 of 1998 as (amended). Applicable to Australian nationals within and outside the territory.

[24] See Section 8

[25] See Article 2, Measures for the Administration of Registration of Objects Launched Into Space. Order No. 6 February 2001

National Aeronautics and Space Act[26] did not define Space object but states objects such as launch vehicles and Experimental Aerospace vehicles as space object. It can be safely suggested that space objects and its component parts is an object designed or intended for the purpose of space related activities which would include Space Station, launch vehicle, artificial satellite, crewed spacecraft, spacecraft, spaceship, space vehicle space probe, space station and payload[27]

The later regimes applicable to space object/asset both generally and specifically appreciates, as mentioned earlier, the involvement of other space actors other that states in space activities. The first of such regime is the 2001 Cape Town Convention which generally applies to international interest in mobile equipment to with many space satellites and object fall within. Article 2(2) provides that '…an international interest in mobile equipment is an interest, constituted under Article 7, in a uniquely identifiable object listed in paragraph 3' and accordingly paragraph three listed out the categories referred to in paragraph 2 to be '… (a) airframes, aircraft engines and helicopters; (b) railway rolling stock; and (a) space assets. Asides hinting that the Convention is also applicable to space asset it did not define space asset. However because of the unique nature of outer space to which all the provision of the Convention may not necessarily be applicable, a Protocol on Matters Specific to Space Assets was made to complement the provisions in the Cape Town Convention to suit outer space activities.

Space asset, by the provision of the Protocol on Matters Specific to Space Assets, means 'any man-made uniquely identifiable asset in space or designed to be launched into space, and comprising'[28] '(i) a spacecraft, such a s satellite, space station, space module, space capsule, space vehicle, reusable launch vehicle, whether or not including space asset falling within (ii) or (iii) below; (ii) a payload (whether telecommunications, navigation, observation, scientific or

[26] Section 308 (f) (i) & 309

[27] An object which a person undertakes to place in outer space by means of a launch vehicle and includes sub-component of the launch vehicle specifically designed or adapted for that object. Section 2465 of the National Aeronautics and Space Act pub. L. No. 111-314 124 Stat. 3328 (Dec 18, 2010)

[28] Article 1(2)(k)

otherwise) in respect of which a separate registration may be affected in accordance with the regulations; or (iii) a part of a spacecraft or payload such as a transponder, in respect in respect of which a separate registration may be effected in accordance with the regulations together with all the installed, incorporated or attached accessories, parts and equipment and all data, manuals and records relating thereto.'[29]

The above definition of man-made objects in space sure makes up for the lack of inexhaustive definition given in the Registration Convention, Liability Convention and the Rescue Agreement irrespective of the term used. To qualify as asset such space object must be man-made, uniquely identifiable, designed and intended to be used in outer space and be individually registered whole or separately. This article opines that there is no difference between space object and space assets and thus can be used interchangeably and depending on the context of discussion. Therefore, for the purpose of this article, the use of the term 'space asset' would be appropriate.

3.0 Contracts on space asset

Just like any other asset or object capable of being conveyed or contracted over, space asset can be a subject of insurance, lease, assignment, sale and as security for loans (mortgage agreement). Accompanying the rule that ownership in Space Object does not change merely because of its being launched into space, presence in space or upon its return to the earth,[30] is also the ability of the owner of the space object, not only to use the object for its intended purpose and in any other manner consistent with the State of registry laws and international law on space, but also to insure, sell, lease, mortgage and assign the space object. The protocol also makes provision to secure ownership, right or interest in space asset notwithstanding that such space asset is docked with another space asset in space, installed or removed from another space asset or returned from

[29] Article 1(2)(k)(i-iii)

[30] Outer space Treaty 1967, Article VIII; Registration Convention 1976, Article II & Space Station Agreement 1998, Article 5(2), Protocol on Matters Specific to Space Assets 2012, Article III

space.[31] In essence, an owner of a space object retains the power to convey title in the space object irrespective of whether the object is on earth or in orbit.

The concept of conveyance of space object was informed by the celebrated incidence of Westar-6 AND PALAPA-B2[32] launched into space by NASA space shuttle and destined for GSO[33] but failed to reach its destination as a result of mechanical failure. These two Satellites remained hanging in low-earth orbit by their respective owner. The Insurance Company deemed the satellites as complete loss, paid the money accrued under the insurance policies and obtained title to the Satellites as agreed between the parties. The insurance company then arranged for the satellite to be brought back to the earth, fixed, and then sold them[34] The transfer of title in space object grew from 'just' insurance arrangement to normal conveyance between State Parties, State and private individuals, Intergovernmental Organisation or Governmental and Non-Governmental Organisations as the case maybe. Examples of such conveyance can be found in the Google and SkyBox Imaging Acquisition Agreement where Google Inc bought Sky box Imaging Satellites for the sum of $500 million in 2014,[35] the lease on an in-orbit Satellite

[31]Protocol on Matters Specific to Space Assets 2012, Article III

[32]Richard Parker, 'On-orbit satellite servicing, insurance and lessons of Palaba B2 nad Wester 6' (2015)1(3)Space Journal of Asgadia <https://room.eu.com/article/Onorbit_satellite_servicing_insurance_and_lessons_of_Palapa_B2_and_Wester_6> accessed 2 November 2022

[33] Geostational Orbit. "Having an orbit at an altitude of approximately 22,240 miles above the equator (35,786 kilometres) such that the satellite will appear stationary from the ground" see Liana X.Y & Daniel V.O, *'A Guide to Space Law Terms'* (2012) Space Policy Institute (SPI), George Washington University & Secure World Foundation Pg 44. Online < htpp://swfound.org/a-guide-to-space-law-terms>accessed 02 November 2022. Geostationary-Satellite Orbit is "*the orbit of a geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's equator."* International Telecommunications Union (ITU) International Radio Regulation 2012 Edition, S.VIII(1.190); Kenneth Peterson, 'Satellite Communications' (2003)3 Encyclopedia of Physical Science and Technology <https://www.sciencedirect.com/topics/engineering/geostationary-orbit> accessed 2 November 2022

[34] *When a Satellite circles close to Earth, it means it's in low Orbit* (LEO). Satellites in LEO are just 200-500miles (320-800 kilometers) high. The Tech Museum < http://www.thetech.org/exhibits/online/satellite/4/4a/4a.1.thml> accessed 02 November 2022

[35]Editorial, 'Google and Skybox Imaging Sign Acquisition Agreement' SATELLITE Market & Research (California, 13 June 2014) <http://www.satellitemarkets.com/news-analysis/google-and-skybox-imaging-sign-acquisition-agreement> accessed 07 November 2022

between SES (Société Européénné des Satellites) of Luxembourg and Thaicom of Thailand,[36] the lease agreement between Eutelsat of Paris (a Satellite Fleets operator) and China on an in-orbit Satellite (launched in 2007) in 2011[37] and the sale of Spot 7 medium resolution optical earth observation satellite between Luxembourg Airbus Defence and Space and Azerbaijan's Azercosmos Space Agency.[38]

Many of the conveyances prior to the coming into force of the two regimes[39] on space assets conveyance were entered into under and purely regulated by the general law of contracts in the jurisdiction. Laws regulating cross border agreement were left to the determination of both parties and at times lex situs. This is because of the lacuna in the earlier major space treaties which did not anticipate commercialisation of outer space. With these two regimes there is now a legal order to which transactions within the provisions of the Cape Town Convention and Protocol on Matters specific to space asset are applicable. The Protocol establishes an overall regulatory framework which recognises and protects security interests of a mortgagee/creditor in space asset. Both treaties take into cognisance the reality that state government cannot continue to effectively fund space activities especially with the boom in economic reality of outer space. Space asset financing is very important especially taking into account the needs of the developing and less developed countries with insufficient or lack of finance from the government. Hence, the introduction of the practice of asset-based financing through an international framework of secured transaction law into the space industry. For the purpose of emphasis, secured transaction in respect of financing space activities is not new as space

[36] Peter de Selding, 'Thaicom Leases SES Sat To Keep Orbital Slot' SPACENEWS (Virginia, 26 September 2012) <https://spacenews.com/thaicom-leases-ses-sat-keep-orbital0slot/> accessed 07 November 2022

[37] Peter de Selding, *Eutelsat Leases Chinese Satellite at 11th Hour to protect Orbital Slots.* SPACENEWS (Virginia, 13 May 2011) <http://spacenews/eutelsat-leases-chinese-satellite-11th-hour-protect-orbital-slot/> accessed 07 November 2022

[38] Peter de Selding, '*Airbus Sells in-orbit spot 7 Imaging Satellite to Azerbaijan'* SPACENEWS (Virginia, 4 December 2014) http://spacenews.com/42840airbus-sells-in-orbit-spot-7-imaging-satellite-to-azerbaijan/ accessed 07 November 2022

[39] Cape town Convention and Protocol on matters specific to space asset

companies have resorted to security loans to finance space project from finance companies as a result of governments low or lack of such finance particularly in the developing countries even before the Cape Town Convention came into force. What the Cape Town Convention and the protocol offered is the recognition and protection of creditor's interest, reducing creditor's risk; and legal framework for such space-asset secured transaction.

Article 1 of the Cape Town Convention recognises a mortgage agreement and describes as security agreement meaning an 'agreement by which a charger grants or agrees to grant to a charge an interest (including an ownership interest) in or over an object to secure the performance of any existing or future obligation[40] of the charger or a third party'.[41] Performance here would mean the repayment of the loan as at when due. Loosely put, a mortgage is 'a legal agreement by which a bank, building society etc. lends money at an interest in exchange for taking title of the debtor's property, with the condition that the conveyance of title becomes void upon the payment of the debt' that is, the conveyance of a property to a creditor as security for a loan. Chipping in the hypothesis here briefly, ScuriX (mortgagor) borrowed money for the launch of Scuri2 (secured asset) from Asonibare Inc (mortgagee) under a security agreement recognised by the Cape Town Convention. The Convention is applicable to international interest in mobile equipment and in this instance (article), space asset,[42] granted by the chargor (focus of this article), vested in a conditional seller under a title reservation agreement or vested in a lessor under a lease agreement.[43]As pointed out earlier, the Protocol on Matters Specific to Space Assets 2012 is necessary to adapt the Cape Town Convention to space related matter because of the peculiarities[44] of the environment and activities carried on.[45]

[40]'Secured obligation means an obligation secured by a security interest.' Cape Town Convention 2001, Article 1(hh)
[41]Oxford Languages and Google <https://languages.oup.com/google-dictionary-en>
[42] Cape Town Convention 2001, Article 2(3)(c)
[43] Ibid, Article 2(2)(a-c)
[44]Other protocols made to complement the Cape Town Convention to suit peculiarities include Protocol on Matters Specific to Aircraft Equipment (2001), Luxembourg Protocol on Matters Specific to Railway Rolling Stock 2007 and Protocol on Matters Specific to Mining, Agriculture and Construction Equipment 2019
[45] See Preamble, Conscious of the need to adapt the convention to meet the particular demand for and the utility of space assets and the need to finance their acquisition and use.

4.0 Mortgagee/Chargee's right to possess space assets

Even though the right to peaceful and quite possession and enjoyment of the use of the space asset by the mortgagor/debtor is sacrosanct in any mortgage agreement, this will not precludes the mortgagee from being entitled to possession in the event of default of payment at the agreed time and end of the waiting period. The regimes have identified ways and options to possess a mortgaged space asset. The provisions on secured financing of space asset and reliefs in the event of default of payment existing in the two regimes are commendable especially being the first attempt. According to the provision of Article 8 of the Cape Town Convention, amongst the remedies opened to a mortgagee (chargee) in the event of default as provided in article 11 is to - i) take possession or control of any object charged to it; ii) sell or grant a lease of any such object; and iii) collect or receive any income or profit arising from the management or use of any such object. The remedies can also be sought for by the mortgagee through a court order.[46] These remedies are expected to be exercised in a commercially reasonable manner.[47]

These remedies were also reiterated and reaffirmed specifically in the Protocol on Matters specific to Space asset. However, as hinted, this article is concerned with the remedy on possession of the space asset which the Protocol, to some extent, seems to shy away from. While article XVII excludes the applicability of the provision on commercially reasonable manner in Article 8 (3) of the Cape Town Convention to space asset, it accommodates the assignment of the debtor's rights[48] to the creditor in the event of default of payment under the secured agreement. Hence, 'a rights assignment made in conformity with Article IX of this Protocol transfers to the creditor the debtor's rights the subject of the rights assignment to the extent permitted by the applicable law.' The right transferred to

[46] Article 8(2)
[47] Article 8(3)
[48] 'means an agreement wherein the debtor i.e the mortgagor in this instance confers on the creditor i.e the mortgagee, an interest (including an ownership interest) in or over the whole or part of existing or future debtor's rights to secure the performance of debt or in reduction or discharge of, any existing or future obligation of the debtor to the creditor which under the agreement creating or providing for the international interest is secured by or associated with the space asset to which the agreement relates.' See Protocol Specific to Space Asset, Article 1(2)(h)

the creditor under a right assigned agreement can further be reassigned to a third party and such reassignment will operate as assignment.

Article XXI[49] gives insight on the right of a mortgagee to take possession of space asset used as security in a secured finance agreement and this is in event of insolvency to which the state concerned has made a declaration to that effect in pursuant to article XLI(4) of the same protocol. The debtor or insolvency administrator is mandated to give possession or control over the secured space asset to the creditor not later than the earlier of the end of the waiting period upon default and the date the mortgagee is to take possession or control over such space asset or transfer the debtor's right under a right assignment.[50] Up until such possession or control is handed over to the mortgagee, the insolvency administrator is to preserve, maintain and value the space asset in accordance with the agreement. This does not also prevent the mortgagee to apply for any other form of reliefs in the interim under the relevant law. However, 'the insolvency administrator or the debtor, as applicable, may retain possession of and control over the space asset and the debtor's rights covered by a rights assignment where by the time specified in paragraph 2 or paragraph 3 it has cured all defaults other than a default constituted by the opening of insolvency proceedings and has agreed to perform all future obligations under the agreement. A second waiting period shall not apply in respect of a default in the performance of such future obligations.'[51]

The second alternative to the mortgagee's right upon default of payment on the part of the mortgagor is still related to insolvency. Hence, upon the request of the mortgagee, the mortgagor is to notify the mortgagee whether it will cure the default and fulfill all obligations under the agreement or allow the mortgagee take possessions of or control and operation over the space

[49] Protocol on Matters Specific to Space Assets. Two alternatives to possession of space assets were laid down.
[50] Ibid, article XXI(2&3)
[51] Ibid, article XXI(8)

asset[52] failure of which the mortgagee is permitted to approach the court for the purpose of taking possession of or control and operation over the space asset provided that the mortgagee can show that such international interest has been registered as provided by the two regimes.[53] The space asset is expected not to be sold or dealt with in a manner that will affect the parties to the agreement pending the determination of the issue by the court.[54]

The provision of article XIX bring succor to the fact that a private individual or entity may also benefit in claims for possession under the regimes as the provision reckons with the choice of the parties to agree to place command codes and related and materials with another person in order to afford the creditor an opportunity to take possession of establish control over or operate the space asset.[55] The fear however, is that the Protocol's idea of possession is more of tracking, telemetry and control but not physical possession and one wonders why? It is high time for laws to be more proactive to fit in to realities. Not even where there are space objects that can very well refuel, service, readjust location, replace and remove other satellites/space objects for a certain reason.[56]

The reality of physical possession is slightly hinted, as much as the regime tries to conceal it, in article XVII (3) where it is stated that 'unless otherwise agreed, a creditor may not enforce an international interest in a space asset that is physically linked with another space asset so as to impair or interfere with the operation of the other space asset if an international interest or sale

[52] Ibid, article XXI, alternative B (2)
[53] Ibid, article XXI, alternative B (3&4)
[54] Ibid, article XXI, alternative B (6)
[55] Article XIX
[56] 'Smart Satellites to Repair and Refuel stranded satellites in space' Space Foundation https://scitechdaily.com/smart-satellites-to-repair-and-refuel-stranded-satellites-in-space/amp/> accessed 15 November 2022; Jonathan O'Callaghan, 'UK wants to send a spacecraft to grab two dead satellites from space' NewScientist (UK,US & Australia, 23 June 2022) <https://www.newscientist.com/article/2325889-uk-wants-send-a-spacecraft-to-grab-two-dead-satellites-from-space/> accessed 15 November 2022; Loren Grush, 'Satellite uses giant net to practice capturing space junk' The Verge (19 September 2018) <https://www.theverge.com/2018/9/19/17878218/space-junk-remove-debris-net-harpoon-collisions> accessed 15 November 2022

has been registered with respect to the other space asset prior to the registration of the international interest being enforced.' It is enough that this protocol is long over-due, shying away from realities is however baffling. This provision can also be viewed as embodying the relevant international laws on the peaceful uses of outer space so that the space activities of a state (and here, a mortgagee) does not interfere with the operation of another states space activities.[57]

The question now is what happens where a space asset/object physically linked to the charged space asset is damaged? Is it the mortgagee who is merely exercising his possessory right as provided in the Protocol or the mortgagor who defaulted in payment? And using the article's hypothesis, are *Asonibare Inc* and/or *UKarm* liable for the damage cause to *Niger7 and Scuri2*?

5.0 Liability for damaged caused during the execution of forfeiture in outer space

Interestingly, neither the Cape Town Convention nor the Protocol on Matters Specific to Space Assets makes provision relating to this probably because this discussion seem new or unrealistic to the world community until the someday when it comes glaring and real. This buttresses the point earlier made that it is not likely that the Protocol especially envisages actual physical possession otherwise there would have been a follow up provisions on how such possession should be carried out and the consequences of causing damage to both forfeited space asset and any other space asset/object damaged in the process. The implication of this lacuna is to fall back to the Liability Convention of 1972 in the event of any damage caused during physical possession of a space asset. The Liability Convention describes 'damage' as regards outer space activities to mean 'loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international

[57] Outer Space Treaty, articles IV, VI, VII & IX.

intergovernmental organisations'[58] It sets regimes to cover damage in outer space, on flight and on the earth and well as create two heading of liability to which a launching state would be accounted to i.e absolute and fault liability. A launching state would be absolutely liable for damage cause by its space object on the surface of the earth or to aircraft in flight[59] however article III provides that where the damage is caused elsewhere than on the surface of the earth to a space object of one launching state or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible. Since the discussion is about damaged caused in outer space, then the provision of article III seem appropriate to work with, hence for a state to be held liable for damage in outer space, the launching State much show that it wasn't it fault as it took all necessary step in his activities and that such damage was as a result of the complainant State's negligence.

As suggested by Registration Convention and Liability Convention's provisions that a launching State include not only the state that carries out the launch or facilitates the launching of a space object but also a State whose territory or facility is used to launch a space object,[60] therefore, it means that it is feasible to have not a single but many states as the launching States for the purpose of liability in the Outer Space Treaty. The operating words are, therefore: *'launch', 'procures', 'territory,' 'facility'* and as far as this article is concerned, '*registry' (*for the purpose of liability). Hence, a space object owned (whether by a state, individual, international intergovernmental organisation or corporations) and to be operated by Nigeria meant to be launched by South Africa launch operators from a United States facility in Canada and registered on Russia's registry may result in Nigeria, South Africa, United States, Russia and Canada all

[58] Article I, Liability Convention
[59] Liability Convention 1972, Article II
[60] See Article 1 (c) Liability Convention and Article 1 (a) Registration convention

being regarded as a launching state for the purpose of liability. Bringing the hypothesis back here, the launching states for the space object that caused damage i.e UKarm would be UK. This arrangement still goes to show that there has to be a different liability regime when it come to secured finance on space assets. Moving on, the only way UK can remove itself from liability is to show that the damage is not its fault rather the negligence of the launching state of Niger7 and if possible Scuri2 by showing evidence of negligence that fits. The question then is, upon forfeiture, scuri2 now belongs to Asonibare Inc who contracted UKarm to remove the scuri2 from outer space back to earth.

Generally, activities in outer space are not left to the wimps and caprices of States. The UNCOPUOS[61] has reiterated the need for mutual cooperation and non interference of States to other States activities. Article IX of the Outer space Treaty provide that 'in the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. …If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment.' A state party is also expected to request for consultation concerning the activity of a state which it feared such activity may interfere and

[61] United National Committee on the Peaceful Uses of Outer Space, set up in 1959 is the UN subcommittee with the task of reviewing and fostering international cooperation in the peaceful uses of outer space as well as to consider legal issues arising from the exploration of outer space. <http://www.unoosa.org/oosa/en/ourwork/copuos/index.html> accessed 16 November 2022

cause harmful interference to its own activities.[62]This Onus could be discharged where Nigeria is able to adduce evidence to show that it is not aware of the act of removal by UKarm and that UK ought to have made consultation knowing that its act of removal can potentially harm other objects belonging to other States. It must also be pointed out that a State of registration is expected to supervise the activities of space object registered in its registry. This is just for the purpose of compliance and not liability for damage caused by such space object. This is to buttress the fact that UK is merely responsible for the activities of scury2 and nothing more but will be liable for being the launching state for UKarm. It will be safe to presume that the private entity involved would be vicariously liable to the launching state who is international liable for the damaged caused.

6.0 Conclusion

The Protocol on Matters Specific to Space Asset 2012 has immensely contributed to the growth of secured financing on space asset as it has created a regime to which such contract is defined. Law should evolve hence the need to call for provisions on the areas which the law has either underrated or overlooked as though such issue will never arise, well, the Cape Town Convention 2001 is an eye opener and hopefully other related and relevant issues addressed in this article will be given consideration.

While it is easy to determine the liability of UKarm and the ability to shift fault to Niger7 where it is found to be negligent in its space activities as well, deciphering the status of the damage to Scuri2 and liability of UK to ScuriX, is quite vague. Should it be concluded that the

[62]Outer Space Treaty, Article IX. 'A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, may request consultation concerning the activity or experiment' See also article I and IV, Responsibility of States for International wrongful Act 2001, *Trial Smelter Arbitration Case (*1938/1941) RIAA 1905

morgagee/creditor lost both money and security for payment (space asset)? Note also that UKarm may also be liable to ScuriX, its client for damaging Scuri2 which it is supposed to bring back to earth. It is high time for space laws to be proactive and not wait for another general law like the Cape Town Convention to prompt another special protocol to this effect. The provision of the Liability Convention as seen cannot adequately cater for some issues that may arise in the event of damage during the act of physical possession of a charged space asset upon the default of the mortgagor/debtor to repay. It is important to have provisions that will answer questions such as a) who is liable where the space asset itself is damaged during physical possession; what is the role of the mortgagor/debtor for a safe possession; and who is liable where other space assets/object is damage in the course of possession.

The issue of the mortgagor/debtor's right over the forfeited assets has to be defined. It will not be too apt to conclude that his right extinguishes upon default of payment and expiration of the waiting period. What if the space asset is valued to be more than the borrowed money so that the mortgagor is entitled to a fraction of the value after the mortgagee must have realised the principal capital loan plus interest? Can the mortgagor maintain claims against both mortgagee and the company contracted to carry out the removal of the space asset from space? What is also the identifiable right of persons who may also have interest over the damaged asset? Until a law comes to answer these questions, it would seem to be matters of contract simplicita and not public international law.