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UNIDROIT SYSTEM OF ASSET BASED FINANCING FOR SPACE ACTIVITIES - NEED TO PLUG THE LOOPHOLES*

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Introduction

The space activities in the beginning are characterised as public sector oriented, as the state was the major stakeholder in the activities. The shift from the public sector oriented space industry to commercial private sector oriented space industry necessitated substantial changes in the traditional modes of financing. The novel system of asset-based financing made inroad rapidly into the space industry to negate the risk involved in the space financing. It carried the advantage of using the asset being financed as collateral and thereby assuring the creditors as to the return of their investment. For huge investment in space activity, this was found highly conducive and promising. Despite this, the divergence of the laws relating to asset-based financing in different countries remained as a major obstacle in raising the fund necessary for the space activities. The efficacy of the security depended on the willingness of the applicable legal regime to recognise the rights of the secured party when they come into conflict with competing claims. Therefore the unification of the domestic law relating to financing was found necessary as early as in 1980's. The International Institute for the Unification of Private Law (UNIDROIT) took up the cause of unification of the domestic finance laws and evolved a novel two-tire structured system consisting of a base convention[1] and area specific protocols to address the issue. Financing of space activities is intended to be governed by the provisions of the base convention and the Space Protocol,[2] which is yet to enter into force. These two UNIDROIT instruments represent one of the most ambitious and imaginative private commercial law projects ever have been concluded. Though the UNIDROIT system is yet to take effect in the field of outer space, this seems to be the right time to look into the effect of the draft system with a view to plug the loopholes.

Significance of the UNIDROIT System

As the title itself suggests, the Convention protects the international interests of the creditors in the mobile equipment and thereby encourages the private investments in the high value mobile equipment. Both the Convention and the Space Protocol recognize the advantages of asset based

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financing and leasing in financing the mobile equipment. They aim to answer the question, how to achieve secured system of financing for space assets by providing a new, protected type of security that would usually override conflicting local law interests.[3] A shift from the traditional debtor based to asset based financing is provided with an objective to enable the operators to obtain the required resources by giving lenders the opportunity to sell the respective assets in case the borrower is in default.[4]

The Convention and the Protocol are based on the principle that a sound legal framework that facilitates the creation, perfection and enforcement of security interests would provide confidence to lenders and institutional investors both within and outside the states, and make it easier to attract domestic and foreign capital.[5] In order to fulfil this principle and to reduce the risks faced by the creditors an internationally applicable legal regime for security, title-retention and leasing interests is attempted under the Convention and the Space Protocol. The regime is expected to facilitate international trade in space assets, expand financing opportunities and lower the cost of financing.[6]

The UNIDROIT system discards the application of lex situs to mobile equipment and adopts the method of allowing the parties to choose the law applicable to their transaction. This avoids the possibility of conflict of laws due to the difference in the *lex situs*.[7] The jurisdiction is determined by the agreement between the parties. The international interest and the prospective international interest in space assets are the unique creation of the UNIDROIT system, which are to be registered in the Internet Registry provided by the system.[8] The registration serves the purpose of giving public notice of the interest as well as provides basis for the determination of priority among the competing interests. However as it is not the proof of the fact that the interest registered is validly created, one must go through the applicable law to determine the validity of the interest. The priority is determined according to registration irrespective of the fact that the holder of registered interest had the knowledge of pre-existing unregistered interest at the time of registration. This provision obviates the possibility of challenging the registered interest on the basis of any pre-existing unregistered interest.

The UNIDROIT system recognises that the creditors always look for the availability of adequate and promptly enforceable remedies in case of default. Therefore a range of standard remedies are set out with the simple procedure to exercise those remedies. The

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UNIDROIT system also breaks new ground in laying down a set of substantive rules governing the speedy relief pending final determination of the claim. Another striking feature of the UNIDROIT system is the availability of the remedies during the insolvency of the debtor. [9] While most of the national laws favour the insolvent debtor, the UNIDROIT system favours the creditors even in case of insolvency by allowing him to exercise the remedies available to him. The States Parties are required to adopt either of the alternative insolvency remedies provided under the Space Protocol. Provisions are also made for the assignment of the rights associated with the international interest as well as for the determination of the priority among the competing assignments.

Loopholes in the System

Failure to Recognise the Distinction between the Space Asset on the One Hand and Railway Rolling Stock and Aircraft Equipment on the Other Hand

The UNIDROIT system of asset based space financing has failed to recognise the distinctive nature of the space assets as mobile equipment. The railway rolling stock and aircraft equipment, when cross the national boundaries, subject themselves to different legal systems depending upon their location. Such movement also results in the change of jurisdiction. However the space assets have a unique character of location in outer space, which is not subject to the sovereignty of any state. Therefore space assets when in orbit continue to be under the jurisdiction of the state of registry.[10] The jurisdiction and control do not change with the movement of the object. Only possible exception to this general rule is the use of airspace of another state while launching the space object. The question of jurisdiction and law applicable to space object during that temporary period is still an open question in the international space law. Due to the above mentioned uniqueness of the space assets, clubbing them with the railway rolling stock and aircraft equipment to establish one single international regime appears to be improper.

Complicated System of Declarations

There is no scope for reservation to the provisions of the UNIDROIT system. But it includes a complicated system of opt-in, opt-out, mandatory and other declarations. These declarations may be enough to undermine the reform's overall effectiveness. It is the result of clubbing of mobile equipment possessing different characters in order to have a uniform system. The declarations that can be made at different stages by the states (ratification, acceptance, approval, accession or even afterwards) are left

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entirely at the discretion of the states. These declarations are also susceptible to modification or replacement by subsequent declarations. This subjects the creditors and the debtors to the cumbersome obligation of keeping track of all declarations and modifications of declarations and as such makes them uncertain as to their rights. The provisions relating to declaration are allowed solely with the purpose of obviating the problem of non-acceptance of the instruments by the states in order to protect their self-interest. However the zeal to get more and more ratification of the UNIDROIT system has resulted in compromising with its basic objective of creating investor-friendly environment. Added to this the Space Protocol provides for modification of the provisions of the base convention relating to several aspects. So *in toto* a much complicated legal framework, which is not easily comprehendible by the public in general, has resulted out of the attempt to unify the law relating to different mobile equipment.

Conflict as to Jurisdiction and Control

The provisions under the UNIDROIT system as to jurisdiction and control are in direct conflict with the provisions of the Outer Space Treaty. Article VIII of the Outer Space Treaty states that a State Party to the Treaty on whose register an object launched into outer space is carried *shall*[11] retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. But under Article 42 of the UNIDROIT Convention the parties to a transaction are free to choose the forum in respect of any claim brought under the Convention, whether or not the chosen forum has any connection with the parties or transaction. Article 43 and 44 of the Convention further confer jurisdiction to the courts of the state on the territory of which the object is situated, debtor is situated and Registrar has its centre of administration to make different orders under the Convention.

Another important question that arises in case of transfer of ownership from the debtor to a foreign creditor in case of default is whether or not the state of registry would still retain jurisdiction and control over the space object? It is important to note here that there is no provision in the space treaties providing for the change of state of registration. If we look at Article VIII of the Outer Space Treaty, there is a mandatory obligation on the state of registry to retain jurisdiction and control.[12] But once the interest in the space object is transferred to foreign creditors, why the state of registry still retains the jurisdiction and control remains unanswered. So in the light of this conflict the possibility of transfer of ownership of the

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space assets in orbit itself is questionable.[13] Though Hermida says that the transfer of satellite ownership in orbit is legally possible by an agreement among the launching state(s) to transfer all of the jurisdiction and control rights and other obligations in favour of non-launching state,[14] it is quite complicated matter. During the back to back meeting of the Space Working Group and a restricted informal group of experts held in 2000, the group of experts concluded that this should be seen as raising a question for the continuing workability of the principle of retention of jurisdiction and control by the state of registry in the light of the developments that were to be expected to flow from the commercialisation of space than as indicating any shortcoming of the new regime provided for the financing of space property under the Space Protocol.[15]

Question of Liability

The interaction of UNIDROIT system and the Liability Convention is also an area of possible difficulty. The Liability Convention fixes the liability for any damage caused by space activities on the launching state.[16] The 'launching state' is defined as a state, which launches or procures the launching of a space object or a state from whose territory or facility a space object is launched. In a COPUOS working paper of 2001 it was expressed that in case of the transfer of space objects to the creditors subject to the jurisdiction and control of another state, the launching state may no longer be able to exercise control over space objects.[17] The question of holding it liable in such cases was considered to be an area of possible conflict between the UNIDROIT system and the Liability Convention.[18] But this may not be so problematic. Because in such cases the state to which the creditor belongs may be considered as the launching state since the launch is *procured* by the creditor. But the problem arises in case of sale of the space objects by the creditors to a third person subject to the jurisdiction and control of a state totally unconnected with the launching of the space object. The state to which the purchaser belongs cannot be considered as launching state, as it does not come within the ambit of the definition. In such a situation, holding the launching state still liable would be unjustifiable.

Conflict between the Liability Convention and the UNIDROIT system may also arise if the creditor's state is not a party to the Liability Convention. As mentioned above, when the space asset is transferred to the creditor due to default, the state to which the creditor belongs attains the status of launching state. In case of a mishap, the state of the creditor has to bear liability under the Liability Convention. But if the creditor's state is not a

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party to the Liability Convention, the rights of the state which suffers damage and seeks compensation would be severely limited. So it is necessary to build measures to ensure the protection of the rights of the state that suffers damage and to ensure that the state of creditor assumes the obligations in such cases.[19]

Failure to Address the Issue of Transferability of Licenses and Permits

The UNIDROIT system does not contain the system of licensing or granting permits for the space activities. Under Article VIII of the Outer Space Treaty the states are required to supervise the space activities of their nationals and are responsible for any damage caused by the private space activities. So the obligation of governmental supervision is carried out through national licensing procedures. This might result in flourishing business of trafficking of licenses.

An issue that requires a special attention in the area of licensing is the possibility of transfer of licenses or permits. Article I (2) (f) of the Space Protocol states that the 'related rights' includes any permit, license, authorisation, concession or equivalent instrument that is granted or issued by, or pursuant to the authority of national or intergovernmental or other international body or authority to manufacture, launch, control, use or operate a space asset, relating to the use of orbits positions and the transmission, emission or reception of electromagnetic signals to and from a space asset. Article II of the Space Protocol provides for the application of the Convention and the Space Protocol to the space assets and the related rights, without determining whether related rights are transferable or assignable. This raises questions as to the transferability of the national licenses or permits. In most of the countries licenses or permits are limited to a specific operator and they are not subject to transfer.[20] For example, in United States, anyone launching space object must obtain a license from the office of Commercial Space Transportation of the Department of Transportation (OCST). This license is not freely transferable. The OCST must approve every transfer. Therefore upon default, the creditor is only entitled to the possession of space property and not the associated rights and licenses.

However transferability of licenses is most desirable from the creditor's point of view as they can exercise the remedies freely. The non-transferability diminishes the value of space objects as collateral. Therefore it is necessary that either the Space Protocol or the national space legislation must provide for the transfer of licenses and permits.

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The possibility of easy transfer of licenses and permits would lead to cost reduction in the financial sector and hence to lower interest rates, which would be beneficial for operators and manufacturers.

Issue of Lenders' Liability

The concept of lenders' liability is one of the developments of mid 1980's. The concept makes the lender liable for various activities on the basis of principle of equity. Though the UNIDROIT system recognises lenders' liability for any breach of agreement relating to space assets,[21] it fails to recognise the liability of the lender in various other fields. One of the prominent fields is liability of the creditor for the environmental damage. The lenders' liability for environmental damage in the situation where the lender is found to be in control of the borrower or in a position to affect the decisions of the borrower is well established in the United States.[22] As the lenders in case of space activities can control the debtor's venture through the tools of finance, it seems possible to make lenders liable for environmental damage caused by the space activities. This brings forward the question, whether the lenders can intervene in the debtor's venture and ask for environmental audits and clean up measures? Due to the absence of clear provisions to this effect, the lenders will be put under the dilemma as to their position in case of any damage to environment. This compels the lenders to go for costly lender liability insurance,[23] which in turn adversely effect the financing of space activities.

The UNIDROIT system is also silent about the lenders' liability for inappropriately handling the collateral after the default. It fails to enumerate the consequences of the failure of the lender to follow the procedure in the exercise of remedies. A question for consideration is, whether the lender can take a decision to stop a particular service or destroy the satellite to prevent operating losses? As interest of nation is involved in most of the satellite services, allowing the creditors to take such steps may prove to be a costly affair. Fixing liability on the lenders for such acts needs to be incorporated in the UNIDROIT system.

Non-interference in the Debtor's Policy

The debtor, under the UNIDROIT system, is entitled to quite possession and use of the space asset until he makes default in payment. This can be undone only by an agreement to the contrary.[24] The rule of non-interference in the debtor's policy may create problems in certain circumstances. The ignorance of the creditors may be abused by the debtors in various ways, sometimes even

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by destroying the collateral. The best example of such an incidence is the case of Iridium LLC. The company suffered huge loss and consequently went into bankruptcy in 1999. Motorola, the principle owner of Iridium, devised a plan to drop Iridium's satellites out of their orbits to burn them in atmosphere with a view to eliminate the operating losses. This kind of activities make the financial community nervous about financing space ventures as the destruction of the collateral makes the creditors devoid of their remedy in case of default.

Non-recognition of the Importance of Principle of Good Faith

Principle of good faith is well recognised as an important general principle of law recognised by the civilised states.[25] But the UNIDROIT system fails to recognise good faith of the parties in the registration of the interests. As mentioned above, an unregistered interest can by no means take priority over a subsequent registered interest. This rule is applicable even though the holder of registered interest had the actual knowledge of a pre-existing unregistered interest at the time of registration. It means that the good faith of the acquirer of the registered interest is irrelevant in determining the priority. Though this rule is favoured to avoid the factual disputes as to the knowledge of the parties regarding earlier interests, it might deprive the rights of an interest holder who had no real opportunity to register his interest. Therefore the rule of priority under the UNIDROIT system is not in conformity with the general principles of law. In addition, it also seems to contravene Article 60 of the UNIDROIT Principles of International Commercial Contracts, which expects the parties to the contract to abide by the principle of good faith.[26]

Difficulty in the Exercise of Remedies

The UNIDROIT system empowers the creditors to exercise remedies such as taking possession or control of the objects and selling or leasing them. But in practice, these remedies seem to be too vague when applied to space assets. It is difficult to seize the property that is in the orbit.[27] Moreover the creditor is also obligated to maintain the satellite even after the default in order to prevent dangerous or environmentally unsound conditions.[28] The act of taking possession of space asset is generally done by the formal act of seizure of assets and control facilities located on the earth. But this is also subject to many difficulties. The creditors, not being the experts in conducting space activities, will not be able to handle the highly technological space ventures. Their small mistake may result in disastrous consequences. Such act of taking control carries the risk of damage to the

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space object caused by the creditor's inappropriate, inexperienced or negligent personnel. The possibility of misuse of the ignorance of creditors in the field of space technology by the debtors also cannot be ruled out. Therefore the exercise of the remedies stipulated under the UNIDROIT system needs the cooperation of the debtors. If the commercial space activities were to attract the benefit of asset-based financing, the remedies available to the creditors, especially in case of insolvency, need to be strengthened.[29]

Apart from the loopholes addressed above, the UNIDROIT system's implication on some important aspects of space activities needs elaboration. The space financing involves various interconnected issues, especially questions relating to state responsibility/liability, patenting of inventions in outer space and significance of the concept of common heritage of mankind and benefit of all countries. The UNIDROIT system has far-reaching impact on these areas.

State Responsibility[30]/ Liability[31] for Private Space Activities

On the one hand the UNIDROIT system encourages the private space activities by providing a system of secured financing of the space assets. But on the other hand the existing space treaties state that the responsibility or liability for the damage caused by the space activities, whether governmental or private, must be shouldered by the states concerned.[32] Article VI of the Outer Space Treaty[33] and Article 14 of the Moon Agreement[34] state that the State Parties to the treaty must bear international responsibility for all national activities in outer space. Both the provisions make it clear that this responsibility extends even to private space activities. But the activities of these private agencies require authorization and continuing supervision by the appropriate State Party to the Treaty.

However this is not in conformity with the traditional notion of the state responsibility. Traditionally the state responsibility for injurious acts done by the private persons is limited only to the extent of failure of the states to exercise due diligence in punishing the offenders and compelling them to pay damages. But under the existing model of space law, state must bear responsibility for whatsoever act conducted by its agents or private persons. So the present system, on the one hand, advocates the supremacy of public interest over the private interest but on the other hand undermines the public interest in cases of responsibility / liability for space activities by shifting the burden of wrongful private activities on the state. Though, the supporters of this regime say that risks involved in space activities require such stringent regime,[35] it does not seem to be

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in conformity with the principle of justice and equity. Avoidance of unjust enrichment and undeserved loss is an aspect of justice. The principle of justice and equity certainly favours the proposition that one who derives the benefit must also incur burden. As the states are not parties to the benefits derived from private space activities, they should not be compelled to incur unnecessary burden. Further the state's power of supervision and control over private space activities is of no practical significance because it is highly impracticable for the states to supervise and control all the private space activities as the rapid technological development has made the states to loose control over the private entities involved in the space activities. Therefore, the space treaties and the UNIDROIT system have unnecessarily overburdened the states by imposing a strict regime of responsibility.

As the injurious private space activities involve fault on the part of both private entities and states,[36] neither of them can be made exclusively responsible for such activities. There is a need for sharing the burden between the two. The notion of *cumul* developed by the French Courts can be a viable solution to this problem. It involves the sharing of responsibility between the states and private entities according to their contribution to the wrongful act.[37] In other words the private entities should be made responsible for the commission of wrongful act and the state should be made responsible for omission on its part. The sharing of such responsibility must be done by an impartial adjudicating body.

Issues Surrounding the Inventions in Outer Space

The establishment of the International Space Station has opened up the possibility of conducting inventions in outer space. With this the question of patentability of the inventions conducted in outer space and protection of the interests of the inventors from infringement has come into picture. As we all know, patent law is fundamentally national in its origin and in scope of application, notwithstanding efforts towards international harmonisation.[38] The dissimilarity in the patent laws existing in various countries has created problems in the international level. The strong national roots of patent system have resulted in some very important consequences that have bearing on outer space activities. Firstly, The invention is protected only in the territory of those countries in which the patent is obtained.[39] As the process of obtaining the patent is very costly, inventors generally go for registration in those countries where violation by manufacturing or extensive use is expected to take place. Secondly, if any violation takes place in a country where it is

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patented, the inventor must resort to the law of that country for obtaining remedy. Thirdly, the courts of the country in which the violation takes place must exercise jurisdiction.

In the light of these consequences, the major question for consideration is how to determine jurisdiction and applicable law in case of violation of patented invention in outer space? Though the question of jurisdiction is almost settled by the Outer Space Treaty, which confers jurisdiction on the state of registry over the space object and personal thereof, the question of choice of law remains unclear till date.

The UNIDROIT system distinguishes between tangible property and intangible rights associated with it. It covers all tangible space property including the future assets. But as regards intangible rights, it adopted the approach of covering only to the extent to which the inclusion of such rights would not encroach on either general national law regimes governing such rights or those special mandatory rules of national law prohibiting their transfer. With this objective in mind the UNIDROIT system did not extend its scope to intellectual property rights. This was intended to prevent the interference with the highly developed intellectual property regimes already existing in many states.[40] But on the other side, it shows the failure of the system to recognise the fact that the interests of the creditors financing the inventions in outer space needs to be protected just like the financiers of other space activities. Though till date, there has been no invention in outer space,[41] consideration of above-mentioned issues needs special attention due to the rapid technological development, which might result in the space inventions at any point of time.

Implications on the Principles of Benefit and Interest of All Countries and Common Heritage of Mankind

The Outer Space Treaty[42] and the Moon Agreement[43] advocate that the exploration and use of the outer space including the moon and other celestial bodies must be carried out for the benefit and interest of all countries. In addition the concept of common heritage of mankind[44] (CHM) advocated under the Moon Agreement declares that the moon and other celestial bodies and the resources therein belong to all mankind and as such they cannot be appropriated individually. Therefore everyone has a right in the benefit derived from the space activities. But on the other hand the UNIDROIT system indirectly supports the individual appropriation by stimulating the increased private commercial space activities. There is no provision in the UNIDROIT system for the sharing of the benefits derived

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out of the private space activities.

During the year 2000, the American commercial space industry has generated a revenue of $ 106.6 billion. The amount of the revenue derived out of commercial space activities is increasing by many fold every year. However this profit is reaped by only a handful of private space investors by sacking the interests of mankind as a whole. This certainly amounts to unjust enrichment made at the cost of common interest. Prof. Dettmering was right in stating that the "commercial use should only be admitted, if it is ensured that a possible profit is going to all mankind"[45] But the UNIDROIT system fails to ensure the use of profits for the benefit of all mankind. Added to this, as discussed above the space treaties impose responsibility/liability on the states for private space activities. In other words the public sector incurs only responsibility/liability without getting any benefit out of the private space activities. This undeserved loss to the public sector contravenes the aspect of justice. Therefore the UNIDROIT system needs to incorporate the aspect of benefit sharing before coming into force in the field of outer space.

Conclusion

The UNIDROIT system is one of the most important achievements in the history of financing the space activities. However the system consists of some loopholes, which have the effect of overshadowing the significance of the system. Therefore there is a need to introduce substantial changes in the system before adopting it.

Firstly, in the light of the difficulties involved in the two-tire structure adopted by the UNIDROIT system, it is suggested that the area specific approach must be adopted by enacting separate convention for each type of the mobile equipment. This would avoid the complexity and fragmentation of the law as well as the complicated system of declarations. The equipment specific convention will be more users friendly and will help in building confidence in the mind of the creditors, as they will be aware of their rights.

Secondly, there needs rethinking on some of the provisions of the space treaties. The provision of the Outer Space Treaty relating to retention of jurisdiction and control of the space object by the state registering it needs to be amended in the light of the recent commercial activities. Similarly the provisions of the Outer Space Treaty and the Liability Convention imposing responsibility/liability on the states for the private space activities should be modified so as to make the individuals responsible/liable for the damage caused by their activities. The state

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responsibility/ liability should be limited only to the extent of its failure to compel the individual to compensate the damage. This means the private individuals must be responsible/liable for commission (of wrongful act) and the states must be responsible/liable for omission (to take steps to compel the individual to compensate the loss). However it should be kept in mind that the basic principles of the space law elaborated under the space treaties must be respected while bringing the above changes.

Thirdly, the transfer of the licenses and permits should not be left to be governed by the national laws. In the absence of transferability of the licenses and permits, the remedies available to the creditors under the UNIDROIT system would be meaningless. The incorporation of the provision to that effect in the UNIDROIT system is necessary to make the creditors free from the mercy of the debtor's state to obtain license or permit.

Fourthly, the rule of non-interference in the debtor's policy must be subjected to reasonable restriction especially in the light of right of the creditors to protect the collateral from being damaged. The creditors must be allowed to seek necessary information relating to space venture of the debtor. This transparency in the debtor-creditor relationship is pivotal for the best practice of financing.

Fifthly, there is a need to spell out the liabilities of the creditors in the UNIDROIT system. Though the system carries the objective of creating the creditor-friendly atmosphere, it is unreasonable to cause imbalance in the system of financing by allowing the creditors to dictate terms. As any successful system of financing needs to take care of the interests of both the parties, the interest of debtors should not be allowed to be suppressed by the creditors.

Finally, the patent rights of the investors and the space actors (debtors) in the inventions conducted in the outer space need a specific mention in the UNIDROIT system. Leaving this issue to be governed by the national legal system will again bring forward the question of diversity in the patent laws of different countries. This in turn creates doubt in the mind of the potential investors in the space research as to the availability of remedial rights over the invention in case of default.

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[1] Convention on International Interests in Mobile Equipment.

[2] Preliminary Draft Protocol on Matters Specific to Space Assets.

[3] 'The International Legal Regimen for the Taking of Security in High-value Mobile Equipment – Possibilities and Challenges', (Summary Report, Colloquium Held in Mexico City, 11 - 12 October 2004) *Uniform Law Review*, Vol. IX, 2004, pp. 596 - 599 at p. 598.

[4] Ingo Forster, 'The UNIDROIT Convention of International Interests in Mobile Equipment and the Preliminary Draft Protocol on Matters Specific to Space Assets - What Should be the Position of Germany in Respect of the Protocol and in Particular the Various Opt-in / Opt-out Alternatives Considering the Commercial Needs and Legal Implications? *Proceedings of the Forty-sixth Colloquium on the Law of Outer Space*, 29 September - 3 October 2003, Published in 2004, pp. 48 - 58 at p. 49.

[5] http://www.unidroit.org/english/workprogramme/study072/main.htm (Accessed on 03 March 2007, 12:38pm)

[6] Paul B. Larsen, 'Space Asset Financing and Trade Issues', *Proceedings of the Forty-sixth Colloquium on the Law of Outer Space*, 29 September - 3 October 2003, Published in 2004, pp. 228 - 233 at p. 228.

[7] See Martin J. Stanford, 'The UNIDROIT Convention on International Financial Leasing and the Preliminary Draft UNIDROIT Convention on International Interests in Mobile Equipment: Two Examples of UNIDROIT in its Law-Making Role', *International Journal of Legal Information*, Vol. 27, Summer 1999. (www.westlaw.com)

[8] Article 16 (1) of the Convention.

[9] Article XI of the Space Protocol.

[10] Article VII of the Outer Space Treaty.

[11] Emphasis added.

[12] Article VIII uses the word state '*shall*' retain…

[13] Hermida J., 'Transfer of Satellites in Orbit: An International Law Approach', *Proceedings of the Colloquium on the Law of Outer Space*, 2003.

[14] *Ibid.*

[15] Martin J. Stanford and Alexandre do Fontmichel, 'Overview of the Current Situation Regarding the Preliminary Draft Space Property Protocol and Its Examination by COPUOS', *Uniform Law Review*, Vol. 6, No. 1, 2001, pp. 60 - 77 at p. 74.

[16] Article II, III & IV of the Liability Convention.

[17] U.N. Doc. A/AC.105/C.2/L.225 (23 January 2001).

[18] *Ibid.*

[19] Rajeev Lochan, 'Cape Town Convention and Space Protocol: A Critical Analysis' in V. Gopalakrishnan and Rajeev Lochan (eds), *Proceedings of ISRO - IISL Space Law Conference 2005*, (New Delhi: Allied Publishers Pvt. Ltd., 2006)

[20] The orbital slots and frequency spectrum are granted to states according to well-accepted practices by International Telecommunication Union (ITU). Therefore they form the properties of the state to which they are allotted. In case of private space activities, the state licences the orbital slots and frequency spectrum to the private entrepreneurs. As the granting of licence is subject to the discretion of the debtor's state, the creditor, when takes control of the space asset due to the default of the debtor, is at the mercy of the debtor's state. Many countries have the practice of placing national restrictions on the transfer of frequency spectrum by citing national security concerns. The ITU Constitution also provides sufficient authority to the states to terminate transmissions and services. This shows that the transfer cannot be

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effected without the consent of the state to which the orbital slots and frequency spectrum belong.

[21] Article XV (2) of the Space Protocol.

[22] See *United States* V. *Maryland Bank & Trust Co.*, 632 F Supp 573 (D Md 1986). Also see *United States* V. *Fleet Factors Corp.*, 901 F2d 1550 (11th Cir 1990).

[23] http://www.irmi.com/Expert/Articles/2000/Hannah09.aspx (Accessed on 21 May 2007, 11:18 am)

[24] Article XV (1) of the Space Protocol.

[25] See the *Free Zones* Case, (1930) PCIL, SER. A, no. 24, p. 12.

[26] Zhang Yuqing and Huang Danhan, 'The New Contract Law in the People's Republic of China and the UNIDROIT Principles of International Commercial Contracts: A Brief Comparison', *Uniform Law Review*, Vol. 3, 2000, pp. 429 - 440 at p. 435.

[27] Stacey A. Davis, 'Unifying the Final Frontier: Space Industry Financing Reform', *Commercial Law Journal*, Vol. 106, Winter 2001 (www.westlaw.com).

[28] Joanne Irene Gabrynowicz, 'Space Law: Its Cold War Origins and Challenges in the Era of Globalization', *Suffolk University Law Review*, Vol. 37, 2004. (www.westlaw.com)

[29] Martin J. Stanford and Bruno Poulain, 'The Preliminary Draft Protocol to the Cape Town Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets', *Uniform Law Review*, Vol. VIII, 2003, pp. 664 - 667 at p. 667.

[30] The notion of state responsibility oozes out of a well-established principle that a breach of international obligation must result in reparation. Whenever, one state commits an internationally unlawful act against another state, the question of state responsibility arises. The three essential characteristics of state responsibility are as follows.

* The existence of an international legal obligation in force between the states concerned.
* Occurrence of an act or omission, which violates that obligation and which is imputable to the state responsible.
* The unlawful act or omission must have resulted in loss or damage.

See Malcolm N. Shaw, *International Law*, Fourth edition, (Cambridge: Cambridge University Press, 1997) p. 541 & 542.

[31] A state is said to have incurred liability when it does any act not prohibited by international law resulting in serious injury. The distinction between the state responsibility and liability lies in the fact that the prerequisite to the former is an act breaching international law and to the latter the harmful effects of an activity, which is not *per se* a violation of international law. See Rebecca M. M. Wallace, *International Law*, Third edition, (First Indian Reprint) (New Delhi: Universal Law Publishing Co. Pvt. Ltd., 2003) p. 203.

[32] Articles VI and VII of the Outer Space Treaty, Articles II, III, IV and V of the Liability Convention and Article 14 of the Moon Agreement.

[33] 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 present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorisation and continuing supervision by the appropriate State Party to the Treaty...

[34] Article 14(1) - State Parties to this Agreement shall bear international responsibility for national activities on the moon, 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 this Agreement. States Parties shall ensure that the non-governmental entities under their jurisdiction

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shall engage in activities on the moon only under the authority and continuing supervision of the appropriate State Party.

[35] John M. Kelson, 'State Responsibility and the Abnormally Dangerous Activity', *Harvard International Law Journal*, Vol. 13, 1972, pp. 197 - 243 at p. 216.

[36] Private entity by the commission of wrongful / injurious act and state by the omission to control such act or to secure reparation.

[37] See generally L. Neville Brown and John S. Bell, '*French Administrative Law*', Fifth edition (Oxford: Clarendon Press, 1998) p. 186.

[38] Anna - Maria Balsono and Bradford Smith, 'Intellectual Property and Space Activities: A New Role for COPUOS?', in Gabriel Lafferranderie and Daphne Crowther (ed.), *Outlook on Space Law Over the Next Thirty Years*, (Hague, London, Boston: Kluwer Law International, 1997) pp. 363 - 371 at p. 363.

[39] See Generally G. Lafferranderie, 'The United States Proposed Patent in Space Legislation - An International Perspective', *Journal of Space Law*, Vol. 18, No. 1, 1990, pp. 1 - 10 at p. 2.

[40] Martin J. Stanford and Alexandre do Fontmichel, 'Overview of the Current Situation Regarding the Preliminary Draft Space Property Protocol and Its Examination by COPUOS', *Uniform Law Review*, Vol. 6, No. 1, 2001, pp. 60 - 77 at p. 68.

[41] Chukeat Noichim, 'The Protection of Intellectual Property Rights in Outer Space of the EU and Thailand' (http://www.thailawforum.com/articles/ipspacenoichim.html)

[42] Article I.

[43] Article 4.

[44] The concept of CHM consists of five major elements: (a) Individual non-appropriation, (b) International Management System, (c) Active and equitable sharing of benefits, (d) Protection and preservation for future generation and (e) Use for peaceful purposes. For further details see generally Sandeepa Bhat B., 'Move Towards a Guiding Principle in Exploring the Outer Space Resources', *Karnataka Law Journal*, February 2007 (1), Part 3, pp. 17 - 26.

[45] See Kunihiko Tatsuzawa, 'The Regulation of Commercial Space Activities by the Non-Governmental Entities in Space Law', [http://www.spacefuture.com/archive/the_regulation_of_commercial_space_activities_by_the_non_governmental_entities_in_space_law.shtml (Accessed on 01 March 07, 1:10 pm)]