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Short Notes

EDITORIAL

The development and application of aerospace technology has resulted in tremendous global impact in diversified fields including social, economic, cultural and scientific. With the increasing globalization of economies, liberalization of space policies, new technological developments in aerospace industry, privatization of some of the aerospace segments, and the growing trend in noninterventionist bilateral and multilateral agreements, there is a development of new trends that are emerging in the aerospace industries throughout the world. Privatization and intensified global competition are forcing aviation and space industries to become responsive, increasingly competitive, and efficient and committed by focusing more closely on their stake-holders.

Over the past few years in India, the attitude of the Government and the Aero-Space industry towards the regulation of aerospace activities has undergone a profound change in almost all spheres. It has been progressively looking forward to privatizing and commercializing space assets expand and develop capability in space exploration and scientific discovery, commercialize its competence to build satellites and offer launch service from its launch vehicles. All these developments are resulting in new concepts of ownership, financing, management and operation of space industry, which are the emerging trends and the hot topics of deliberation in India. While India has accomplished international acclaim in the area of aerospace technology development and utilization, it is yet to see an integration of efforts at the national level from the standpoint of the private sector.

In this regard, I take immense pleasure in introducing the second issue of Indian Journal of Air and Space Law' at the Centre for Air and Space Law, NALSAR University of Law, Hyderabad. IJASL is a bi-annual legal publication that focuses on the evolving intersection of air and space law. This area of study draws on a number of legal specialties: each of which is undergoing doctrinal and practical changes as a result of new and emerging technologies and

contemporary developments. Through the journal, we intend to examine new developments, synthesize them around larger theoretical issues, and critically examine the implications.

The journal is the outcome of relentless effort of Prof. Dr. Faizan Mustafa, Vice-Chancellor, NALSAR University of Law, Hyderabad. Prof. Mustafa's constant, unconditional and encouraging support coupled with exemplary leadership, pleasing personality and exceptional administrative skills have been a source of inspiration to us. He has always directed my academic path to evolve avenues for research, publication and achieve higher levels of excellence.

I, on behalf of my Editorial Team, profusely thank our Patron for entrusting his faith in our abilities to launch this journal. We extend our gratitude to the International and National Advisory Board whose valued suggestions and advise have guided the journal in every aspect.

The Journal is our humble attempt in contributing to the field of aviation and space law research and we hope to continue the good work with our team at Centre for Air and Space Law (CASL).

V. Balakista Reddy
Editor-in-Chief

CENTRE FOR AIR AND SPACE LAW (CASL)

The NALSAR University of Law has always endeavored to promote quality research in contemporary legal issues. One of the contemporary but neglected areas in Indian legal realm is Air and Space laws. To fill this gap and to promote further studies and research in the aerospace law, the University established the advanced Centre for Air and Space law (CASL) in 2005 with object to contribute to the development of aviation and space laws and related policies by conducting and promoting research and teaching at different levels. Since then, NALSAR-CASL has been continually promoting the study of Air and Space Law by conducting National and International Conferences, Workshops and Publishing Newsletters, Books and Articles in Aerospace law field.

The University has been teaching the subjects of air and space law for the past ten years. Till the date, there are many students with degrees in air and space law who have now been absorbed in the national mainstream and are working with the airlines, airports and the multinational corporations. Recently, NALSAR -CASL has also launched few innovative On site and Online courses which include the Two-Year Master's Degree in Aviation Law and Air Transport Management (MALATM); Two-Year Master's Degree in Space and Telecommunication Laws (MSTL); One-Year Post-Graduate Diploma in Aviation Law and Air Transport Management (PGDALATM) and One-Year Post – Graduate Diploma in GIS & Remote Sensing Laws. The objectives of these courses are to cater to the needs of unprecedented aviation growth coupled with commercialization of space and telecom industries, which calls for thousands of skilled manpower to meet the managerial requirements of rapidly growing airports, airlines, aerospace and telecommunication sectors. CASL also undertakes collaborative research activities in areas of common concern with state governments, NGO's and other international organizations.

ARTICLES

UNMANNED AIRCRAFT SYSTEMS INTO NATIONAL AVIATION SYSTEM: CHALLENGES AND RESPONSES

Dr. Rahul J. Nikam[*]

Abstract

During last 25 years of aviation industry, 65 helicopter air ambulances accidents were occurred. In these accidents more than 125 personnel were died. To know the factors behind these accidents and to bring improvement in operation of Helicopter air ambulances, a federal agency constituted an investigation committee. The contributory factors to the accidents were detected. To cop up the situation, regulations were brought into action. During the implementation several issues have started to emerge by taking different shapes and forms. The responses from the FAA and DGCA were sought to improve further the safe operations of helicopter air ambulance services and safety of the patient and medical staff on the board. The paper while taking account of the central regulatory issues it touches upon the technicality involved in regulatory mechanism. Further it deals with humanism with serious concerned of lives. The stress upon obeying the minimum standard and recommended practices has critically being examined and concluded.

INTRODUCTION

Unmanned aircraft are having various names such as "drones," "remotely piloted vehicles (RPV)," "unmanned aerial vehicles (UAV)," "models," and "radio control (R/C) aircraft." Unmanned

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Aircraft Systems (UAS) word use to indicate a different systematic mechanism for operations in air without pilot onboard. Due to this feature some time UAS are more reliable and safe compared to manned aircraft regulation. The reasons for this differences in deigns are that there are no uniform specifications for design to frame UAS across global developers of UAS.

Proposed Civil and Commercial Applications

In the past UAS were not used that much frequently compared to present time they are being used. This machines were used mostly in private areas or remote location where they could not interfere or disturb anyone safety or create danger to civilian aircraft flying in National Aerospace System (NAS). Are proving their ability and cheap operation cost, it is turning commercially profitable are expanding in areas such as Security consciousness; Search and relief to rescuers in disaster management; new and sport coverage broadcasting and viewing, Cargo transportation; Critical infrastructure such as power plants, ports, mining monitoring, photography, advertisement, remote mapping and monitoring.[1]

Thus UAS operation are increasing day by day and their interference in civilian national aviation system is posing threat to manned aircraft and therefore it is the high time to channelized UAS operation for safe and efficient integration in NAS. As UAS unique feature relating to designs and technical specification which

[1] see Operational Services and Environment Definition (OSED) for Unmanned Aircraft Systems (UAS), RTCA DO-320, 2010

varies from each module to module make it difficult to present rules and regulation to have smooth integration. Thus it is inevitable to review present policies, regulations, standards procedures. There is also need to look in to the other impact on environment and private privacy and also to overcome from the technical gap in UAS technologies with manned aircraft and associated developments.[2]This new development has pose threat to the existing NAS in various countries. The major key areas such as Privacy, National Security, Small Unmanned Aircraft Systems in Congested Areas, Detect and Avoid Capability, Human Factors in UAS Operations, UAS Autonomy from Air Traffic Management (ATM) or under authorization of ATM and spectrum allocation which are going to create problem for existing national airspace system. Therefore it is inevitable for civil aviation authorities to develop regulations, policy, procedures, guidance material, and training requirements to support safe and efficient UAS operations in the NAS. In this backdrop we will see in the present article how Civil Aviation Authority (CAA) of UK, Federal Aviation Agency (FAA) of USA and Director General of Civil Aviation (DGCA) of India are responding to response UAS in present regulations, policy, procedures and necessary changes to smoothly integration of UAS in their respective NAS.

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[2] 2022-2026, which is consistent with the Joint Planning and Development Office (JPDO) *National Airspace System Concept of Operations and Vision for the Future of Aviation and NextGen Air Transportation System Integrated Plan*

ICAO MANDATES

Before we see individual country response, it is inevitable to see the objective and mandate mentioned in mother treaty i.e. the Chicago Convention. It make compulsory to every member to comply the provisions and Standards contained in the Convention and in Annexes. This provision is not applicable to the aircraft used by respective countries military, custom and police establishments.[3] It means it is applicable to only civilian aircrafts of signatory countries. Convention also make it clear that state aircraft will fly only with authorization from other country through which it is going to fly over the territory of the other country. Contracting States will pay due regard while flying over another country's territory on safety of navigation of civil aircraft. Without special authorization unmanned aircraft will not be flying over another country's territory[4] Article 8 state that without prior authorization no manned aircraft shall fly over any contracting state and aircraft to be under controlled and should be in position to avoid any danger to civil aircraft.

UNITED KINGDOM

United Kingdom (UK) has taken a view in the form of policy related to the Unmanned Aviation System (UAS) while operating Unmanned Ariel Vehicle (UAV) required following minimum safety and operational standards which are followed by manned

[3] Article 3 of Chicago Convention
[4] Article 8 of Chicago Convention

aircraft for safety of manned aircrafts and not hazardous to people, their life and properties in any form. When the UAV is in the air or on ground this situation must be treated as the ascribable operations of manned aircraft.

The Rules of the Air Regulations of ICAO are set out in the Rules for Avoiding Aerial Collisions. UAS operations are based on the principle of 'Detect and Avoid'' instant of 'See and Avoid' principle which is generally used in polite on board of the aircraft.

As the UK is the member of European Union (EU) it is bound to follow the EU European Aviation Safety Agency (EASA). EC Regulation 216/2008 covers areas relating to certification of airworthiness, continuing airworthiness, operations, licensing of pilot, air traffic management and aerodromes. Thus this regulation of European Union does not apply to state aircraft and similar activities and to the Annexure II Aircraft. Annexure II aircraft are those category of aircraft uniquely designed or modified in limited versions for research, experimental or scientific purposes having capacity of maximum mass of 150 kg for operating purpose. Therefore those UA having capacity of more than 150 kg and other purposes mentioned above are governed by EASA regulation relating to airworthiness certificate. All aircrafts which are either State aircrafts or comes within one of the exempt categories mentioned above falls under the subject and national regulation on airworthiness certification.

As far as UK is concerned there are two regulatory regimes: civil and military. Thus all civilian aircraft and an Annex II craft must be registered under UK aviation safety legislation, comply with civil requirements for certificate of airworthiness or a permit to fly. The Air Navigation Order (ANO), 2009 provides exemption to an unmanned aircraft of mass 20-150 kg or 'small unmanned aircraft' weighting less than 20 kg and being governed by condition mentioned under Articles of 166 and 167 of the ANO. The condition impose is to obtained permission from Air Traffic Control (ATC) for maximum height of 400 ft and permission from CAA if it's for aerial work purposes in controlled airspace or within[5] . This prohibition is on the flight in controlled airspace or within a traffic zone of airfield. Article 167 covers only those small unmanned aircraft for surveillance or data gathering.

UAS Classifications

At present UAS classification is based on simple variants or other such type of aircrafts having fixed or rotary wing and mass taking capacity. UK has taken the concept of Operations Approach to classify UAS, through this UK has made three simple classification of UAS based on mass. First if it the Surveillance Unmanned Aircraft (SUA) having mass capacity of 0-20 kg; secondly if Light UAS having mass capacity of 20-150 kg then responsible regulatory body will be National Aviation Authority. Thirdly, UAS having mass capacity of more than 150 kg than regulatory

[5] Section Article 166, ANO 2009

authority will be EASA.[6] Based on above mentioned classification it is clear that UK will have jurisdiction for certification of UAS mass capacity of 150 kg and below, thus fall fully within the national process and operational use.

Approvals, Permissions and Exemptions and Operate of UAS

Air Navigation Order does not speak and cover very less area in its provision relating to the Small Unmanned Aircraft (SUA). But under Section 242 CAA has power depending on the Unmanned Aircraft (UA)'s if there is chance of damage or injury through operation to civilian control airspace.

Approvals

If the UA is caring mass of 20 kg or less, than certificate of airworthiness and Registration is not required, but operating permission and pilot qualification requirement are necessary. Second, if the UA is caring mass between 20 kg to150 kg required the certificate of airworthiness, Registration, Operating permission and pilot qualification which are applicable on general basis. For both above mentioned categories requirement are same as applicable for aerial work purposes or manned aircraft flying in crowded area or property. The UA application for operation permission is concerned pilot experience criteria will also be taken in consideration on case to case basis. Third, if UA is caring a mass of more than 150 kg, than EASA approval; or, CAA approval in certain cases for the certificate of airworthiness, Registration,

[6] NAA - for Annex II aircraft

Operating permission and pilot qualification. CAA is primarily responsible for safety and security of air navigation and public at large. There are other states agencies having legitimate interest for various other reasons to control and govern UAS, as far as CAA is concerned its interest is in only to flight safety and of operation of UAS. Therefor a UA which are intended for operation will allow operating with this requirement and those falling outside this operation will be exempted from above mentioned requirements subject to the condition that they are satisfying minimum requirements of CAA's satisfaction.

Permissions and Exemptions

As per Article 259 of ANO 2009 if any aircraft is flying for aerial purpose or related purpose then it required to apply for permission. Only those aircraft flying for research or developmental flight operation are conducted in house and not disturbing other flights aerial works are exempted. It means that the CAA permission is required for aerial work by SUA Operators[7] and Small Unmanned Surveillance Aircraft (SUSA)[8] and also required to submit safety case along with operation risk assessment.

UAS Operating Safety Case (UAS OSC)

The applicant through UAS OSC i.e. the Concept of Operation methodology provides safety measures used in operation to CAA. This safety measures must be filled in a UAS OSC Template while

7 Article 166(5) of ANO 2009
8 Article 167(2) of ANO 2009

applying for permission to operate.[9] It is applicable to the three categories i.e. mass capacity of 0-7 kg, 7-20 kg and 20-150 kg. As far as mass capacity of Small Unmanned Aircraft i.e. 0-20 kg will have to comply with requirement of ANO 2009 Section 166 and section 167 for grant of permission for aerial work. CAA can give permission in either of two categories based on actual types of Models of SUA. First category is Permission for SUA not exceeding 7 kg[10] and second, Permission for SUA of 7 kg- 20 kg[11]. And if there is any future development, it will be covered through the maximum take-off mass (MTOM) in kilograms varying from 7 kg to 20 kg with multi-rotor or fixed-wing modules.

Small Unmanned Aircraft Systems in Crowded Areas

Crowded area means those areas which are mainly residential, industrial, commercial and recreational areas[12]. While allowing permission for aerial work CAA will keep in mind that SUA has submitted its UAS OSC measures for aerial work form safety operation point of view. This is because there is high risk of causing endangerment while flying in the densely-populated urban environment and conditions such as protection of third party to reduce the risk to third parties will be imposed on operators of UAS. Under ANO 2009 Article 138, operators of SUA must be

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9 The CAOSC template to be used for application prior to the publication of Edition 6 of CAP 722.

10 Article 166 of ANO 2009

11 Article 167 of ANO 2009

12 Article 255 of ANO 2009

utmost careful and their aircraft should not put in danger any person or property.

SUA having mass capacity of up to 7 kg can fly within 50 meters of persons, structure or within 30 meter if persons are under control with whom aircraft is control. If in an area where more than 1000 peoples are gathering then within 150 meters of open-air assemblies, SUA cannot allow being flying. The SUA having capacity in between 7 to 20 kg is not given permission to fly within congested areas. Only in conditional circumstance where direct control or control is within the person who is directly controlling SUAs will be allowed in congested areas. The person in charge means persons who are directly controlling operation of SUA and under direction or supervision of senior having foreseeable risk avoidance plan with non-interactions with the SUA.

CAA Policy on Detect and Avoid Capability

It is inevitable that UAS flying is going to be increase in recent and future through their effective operations and commercial viability, UAS has to meet the requirement of manned aviation safety standards whenever they are in operation. To bring at par with capability and level of safety for the UAS industry, the concept of detect and avoid is develop which is equivalent to the existing 'see and avoid' concept. This is just one among other requirement which addresses the safe operation of UAS. The idea behind this is that UAS should not pose greater hazard to manned aviation and wherever there is possibility must follow the manned aircraft

safety standards and shall comply with SARPs of ICAO for separation and collision avoidance.

It means that on the one side the SUA technology will identify the potential hazard and notify the command management and navigation system and on the other side avoid functions will be working on two part i.e. separation assurance and collision avoidance. Separation assurance means it will prevent the aircraft getting collided with each other and in such circumstances to get maneuvering as per rule of ICAO SARPs and with the help of ATC instructions. The remote polite mechanism may contradict with the Rules of the Air or ATC instructions.

Through this concept of Detect and Avoid which helps in separation and collision avoidance capabilities within the Rules of the Air. This technic increases capability to enables remote pilot system to determine in-flight meteorological conditions and avoid hazardous weather; terrain and other obstacles; at par with the functioning of manned aircraft.

CAA Policy on Human Factors in UAS Operations

Design, operation and maintenance of UAS are representing the key human factors involved in UAS operation[13]. This tactic makes the balance between system as an entity in one and interactions with domains of manpower, training, human engineering; system safety; human-machine interface (HMI) and work place load and

[13] CAP 719 and CAP 716 coverers human factors.

human error assessment[14]. As these are the key components if goes well and hand in hand, safety and security objectives can be achieved at par with manned civilian system develop by ICAO.

CAA Policy on UAS Autonomy- Automation and Authority

It is the last few decades' inherent assumption in emergency situations is that when technology is fail then human intervene is required and take direct control within fraction of seconds at critical stage. Thus when human intervention is there enough information will handy which will keep e continuous situational awareness. Therefore for the foreseeable future, it is inevitable for human intervention facility be available with UAS level of autonomy in the form of high automated systems in civil UAS.[15] If UAS is going to have autonomy in the form of high authority automated system for remotely control operation, this high authority automated system must give due regard to compliances and ATC instruction or a request for information from it. Through this CAA has tried their best to strike balance in between automation system and authority system for control and interface of UAS.

[14] CAP 719 Fundamental Human Factors Concepts; CAP 716 Aviation Maintenance Human Factors EASA/JAR145; CAP 737 Crew Resource Management (CRM) Training; CAP 789 Requirements and Guidance Material for Operators; ISO 9241 ISO 13407.

[15] The overall safety requirements comply with CS XX.1309.

Developing Security for UAS

Due to technical and persons controlling variation of UAS, a Security aspect is at high risk. Particularly when see the operations in crowded areas on side and safe, secure operation data exchange between system elements, accuracy and integrity, access control, authentication and identification etc on the other side. The main component of security is based on object reuse and asset retention for UAS. For security purpose the manned aviation procedure will be equally applicable to UAS such as certification, approval and licensing processes and agreed security design, evaluation and accreditation process will be integrated as and when necessary.

UAS Spectrum Issues

As far as radio frequency is concerned it will be allocated with dedicated spectrum and process universally used and applicable by International Telecommunication Union (ITU). In this regard the allocation of frequencies will be as per present norms followed by civilian manned aircraft system. The present national regulations/legislation on licensing regime will be used to support UAS safety-critical functionality.

UAS Registration

Generally for civilian aircraft registration process is contained in ICAO Annex 7 and more or less is being followed in Air Navigation Order in UK. CAA policy is that for UAS also same

process and requirement will be applicable for registration.[16] UA more than 20 are required to be registered unless exempted under BCAR A8-9[17]. UA more than 150 kg must be registered with the CAA and issued with a registration identity will be of five characters starting 'G-' (e.g. G-WXYZ) and details information will be made in aircraft register. The registration must be displayed permanently on the aircraft[18]. As far as insurance and third party accident and war risk insurance is concerned it will be following the EC Regulation 785/2004 as a minimum requirement for fly to meet their liabilities over or the EU and compliance and monitoring will be carried by CAA.[19]

USA

In United State an aircraft can only be operated unless it is registered with Federal Aviation Agency under Federal law[20]. Till 2012 definition of aircraft was narrowed such as "as any contrivance invented, used, or designed to navigate, or fly in the air" but after 2012 amendment by Congress added Unmanned Aircraft Systems (UAS) for any purposes will be treated as aircraft as per statutory definition of aircraft.[21] The FAA is of view that time has those UAS which are exempted for operation purposes from registration formality will now be registered as per

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16 The legislative requirements are contained in the ANO, Articles 3 to 10.
17 see www.caa.co.uk/cap553
18 Part 3, Schedule 3, ANO 2009.
19 Articles 3 to 10 ANO 209. Other guidance material is available at www.caa.co.uk/aircraftregister.
20 (49 U.S.C.§ 44101(a)).
21 49 U.S.C. § 40102(a)(6); See Pub. L. 112-95, §§ 331(8), 336.

present rules Operation and Certification for the same.[22] Due to the rapid utilization in the national airspace resulted FAA to re-evaluate present policy in the interests of public safety and the safety of the National Airspace System (NAS)[23]. The FAA has the maintained through UAS registration framework will achieve twin goals i.e. accountability and maximum level of compliance through achieving three objectives namely, develop and recommend minimum requirements for registration, registration processes and methods for proving registration and marking. In this regard the Department of Transportation (DOT) and the FAA formed the Task Force[24] having above mentioned objectives.

The registration requirement is going to apply to those sUAS not exceeding 55 pounds and operated outside the NAS. The Task Force recommended three point registration processes such as registration form can be filled out through web electronic or an application based[25]. Secondly, applicant will receive an electronic registration certificate and individual unique registration number for all sUAS owned him and lastly, either registration number or registered serial number shall be marked on all sUAS before they

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22 See 80 FR 9544 (Feb. 23, 2015).

23 On October 22, 2015, Clarification on Applicability of Aircraft Registration Requirements for Unmanned Aircraft Systems (UAS) and Request for Information Regarding Electronic Registration for UAS. See 80 FR 63912.

24 On October 22, 2015,

25 FAA requires all registrants to provide their name and street address, with the option to provide an email address or telephone number. FAA to take all possible steps to shield the information of privately owned aircraft from unauthorized disclosure, including issuing an advance statement that the information collected will be considered to be exempt from disclosure under FOIA.

commenced their operations. Under this registration process maximum 250 grams UA will be excluded. This decision is based on ground that maximum weight possible against the maximum takeoff in manned aircraft terms which includes other factors also. Another reason is for exclusion is that the probability of a catastrophic event occurring in collision situation. This is the principle used for aircraft safety and risk management in civilian aircraft system.

The registration will be a free, one registration number for each applicant. Registration of UAS with the FAA is compulsory before starting of operation. Online system multiple user to feed registration information and driven by an "application program interface" (API) having optional provision for email address, telephone number, and serial number of the aircraft. Citizenship is not given much weight[26] but minimum age of 13 years to register is mandatory[27]. Once application is successfully registered it will generate and send a certificate of registration with a unique registration number and the aircraft serial number for all sUAS owned by the individual. Compulsory condition which needs to follow that this registration number will be directly marked on each sUAS the registrant owns. These registration processes will

[26] Task Force recommends that it's a discretion of FAA to permit owners, not eligible to register to operate in the U.S. by applying for an expedited waiver for a specified, limited period of time (consistent with §41703(a)(4)). Eliminating the citizenship requirement will help achieving the goal of knowledge on safety purposes.

[27] Individuals be 13 years or older to register a sUAS is consistent with the Children's Online Privacy Protection Act, 15 U.S.C. §§ 6501-6505.

ultimately also contribute to existing campaign know before you fly[28].

INDIA

As far as India is concerned, policy is wait and watch as Director General of Civil Aviation (DGCA) is yet to frame Rules and Policy on UAS in Indian NAS. In this regard DGCA has issued public notice having file no.05-13/2014-AED, dated 7th October 2014 saying that International Civil Aviation Organization (ICAO) is considering development and integration of UAS in to civilian aircraft system and has stated deliberation in this regards on Standards And Recommended Practices (SARPs), various certifications and standard operation process of civil use of UAS. Due to high volume of civilian aircraft traffic and nascent stage of regulation, operating procedures and variation in technology of UAS pose safety and security threat for air collisions and accidents. The Aircraft Act 1934 and regulation made it compulsory for all civilian aircraft to be registered and authorized by nodal agency i.e. DGCA. As far as UAS concerned it is not only DGCA but other nodal agencies are also such as air navigation service provider, Ministry of defence, Ministry of Home Affairs and other concerned security agencies. Therefore until globally and nationally regulations for certification and operations of USA is formulated and issued, in Indian civil airspace except government agencies, no private agency,

[28] Equipped with information will help to make UAS knowledge could be similar to the existing content in the Know Before You Fly program.

organization and individual will launch a UAS for any purpose whatsoever.

CONCLUSION

When we see from above mentioned measures taken by UK, USA and India, it is the UK who has taken the lead in this area. UK has develop a through rules and regulations compared to USA and India. UK through various Unmanned Aircraft System Operations in UK Airspace Guidance's has given thorough thought on framing the rules and regulation keeping in mind the present Rules of Air as well as Standard and Recommended Practices of ICAO and its feasibility to UAS. In its latest sixth edition 2015 of CAP 722 it has covered areas such as general policy and scope of UAS in NAS along with policy and law with lead agency to look after the UAS. It also content the UAS classification and future technological development along with approval, approval for operation in detail keeping in mind about approvals, permission, exemption, aerial work, determination of liability through insurance, operating safety cause in general and in congested area, and regulatory enforcement. It has also given due weightage to civil UAS remote polite competency, UAS autonomy, security issues and spectrum policy. As far as common points are concerned in UK and USA policies, USA policy has also discussed about approvals and registration process of UAS while inducting the UAS into NAS, in this way USA' policy has not considered all other points compared to UK policy. As of now it can be said that USA' policy is

concerned only about registration process and has overlooked other areas compared to UK policy. As far as India is concerned it has banned the civilian operation of UAS saying that rules and regulation are in process of framing. Therefore it will be interesting to see how ICAO is going to response keeping in mind future development, autonomy, smooth induction and commercial uses of UAS on one side and safety, security of manned aircraft system and world air navigation order on the other side.

A CRITIQUE ON THE AVIATION LIABILITY NORMS IN INDIA: IN THE LIGHT OF THE INDIAN CARRIAGE BY AIR ACT 1972

Ms. Anita Singh[*]

Abstract

When civil and general aviation initially developed, a legal regime was required to govern the liability of the air carriers, not only for the purposes of providing protection to the passengers or carriers but also for the purposes of fixation of cases and the conditions subject to which the carrier would be liable. This resulted in the enactment of the Carriage by Air Act 1972 (hereinafter called as 'Act') which in the form of its schedule contained the three most significant international instruments which regulated the liability of the air carrier at the international sphere including the Montreal Convention of 1999 which was incorporated in this domestic legal framework by way of the third schedule. The Act brought the much needed relief and provided a concrete regime to govern the liability of the air carrier. But over the period of time these provisions of the first and the second schedule of the Act have proved to be insufficient to provide adequate relief. Despite path breaking changes in the third schedule, its general provisions and broad framework carries the potential of being misused, primarily by the air carriers in order to escape their liability under the Act. The article presents a critique of this Act in the light of its third schedule which incorporates the path breaking changes brought by the Montreal Convention in the international level.

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INTRODUCTION

The civil aviation industry in India is one of the fastest growing industries in India. With the growing busy schedule of the daily life, people continuously look for and adopt any means to save time and energy. The tremendous growth in the civil aviation industry in India is a product of such need to save time and energy and has become a very convenient mode of travel. Aviation is one of the few areas which developed very early prior to the independence. India is perhaps one of the most progressive countries as far as the development in the civil and general aviation is concerned. Civil Aviation industry in India has grown and as a matter of fact is continuing to grow at such a fast pace that it has been recently predicted to become the third largest aviation market by 2020[1].

India has a huge aviation industry and every year the civil aviation in India carries an unimaginable load of passengers, luggage and cargo. Civil Aviation Minister in a recent event has commented on the tremendous heights the civil aviation has achieved and projected India it to be the third largest aviation market by 2020[2]. It is projected that the centre of gravity in the aviation industry will be shifting to the Asia-Pacific region in the coming years. Civil Aviation is currently one of the key factors in a country's

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1 Ministry of Civil Aviation Report, '*Strategic Plan 2010-2015*', p.2.

2 IATA, *Special Report on Putting the pieces Together*, October 2012, available at http://www.iata.org/publications/airlines-international/october-2012/Pages/india.aspx

economic growth and infrastructure. Civil Aviation is a key infrastructure sector that facilitates the growth of business, trade and tourism, with significant multiplier effects across the economy[3].

Air transport has definitely been a key factor in India's growth in international trade in recent decades. It is now one of the reliable and faster modes of transport services which move passengers and goods, luggage or cargo from one place to another. Increased air connectivity enables manufacturing enterprises to exploit the speed and reliability of air transport to ship components across firms that are based in different and distant locations thereby minimizing the inventory cost. Role of air transport is crucial for the development of Tourism industry[4].

Thus, the economic foot-print of the Civil Aviation sector which reflects the value addition and the direct and indirect employment created by activities of the sector appear to be much deeper and wider in terms of its multiplier effect[5]. Scheduled airlines in India contribute to over 50% of the gross income of the Civil Aviation sector in India[6]. Apart from Scheduled operations, India has also witnessed a significant growth in the non-scheduled operations and

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[3] Ministry of Civil Aviation,National Transport Development Policy Committee,*Report of Working Group on Civil Aviation Sector*, June 2012, available at <http://civilaviation.gov.in/cs/groups/public/documents/document/moca_001680.pdf>

[4] *Ibid.*

[5] *Id.*

[6] *Id.*

the same has increased by four folds now. Total no of passengers carried by domestic airlines in the month of January – May 2013 is 259.98 lakhs[7].

Such huge is the ambit and significance of the civil aviation in India. It carries such a huge number of passenger and cargo on a daily basis. Therefore it was very essential to provide for a legal regime within which this accountability can be fixed and this led to the enactment of Carriage by Air Act 1972.

CARRIAGE BY AIR ACT 1972: AN OVERVIEW

India in pursuance of its international commitments under the Warsaw Convention 1929[8] and the amended Warsaw Convention of 1955[9] enacted the Carriage by Air Act 1972 and incorporated the provision of these two conventions by incorporating a first and second schedule which provides for these rules under the respective convention. Thereafter when India ratified the Montreal Convention in 2009[10], it immediately incorporated the provisions of the same in the third schedule. The current chapter presents a brief overview of the Carriage by Air Act 1972 with special emphasis on the third schedule.

To begin with, the Preamble of the legislation clearly defines the purpose and the mandate of the said legislation which was to give

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7 Passengers Carried By Scheduled Domestic Airlines, DGCA Statistics available at http://dgca.nic.in/reports/pass-ind.htm

8 *Supra* Note 2

9 *Supra* Note 3

10 *Supra* Note 4

effect to the international commitments of India under the Warsaw Convention[11], amended Warsaw Convention[12] and subsequently the Montreal Convention[13]. Hence the sole objective of the enactment was to fulfill India's international obligations existing under the above mentioned conventions.

However the most important operative part of the legislation has been covered under Section 3, 4 and 4A of the Carriage by Air Act 1972. Carriage by Air Act 1972 extends the provisions of the rules contained in the first schedule, second and third schedule to have the force of law in India with respect to any carriage by air to which the rules apply, irrespective of the nationality of the aircraft performing the carriage[14]. Further the legislation also excludes the application of all the laws which may be contained either in Fatal Accidents Act 1855 or any other law for the time being in force which can be utilized for the purposes of calculation of the compensation for the death of passenger[15]. Therefore by virtue of application of this provision, in case of death of any passenger, any other law which would or could have governed the amount of compensation in such cases of death would no longer be applicable and the provisions contained in the first and second schedule which may be applicable as the case may be, shall be applied for the purposes of calculating such compensation. Therefore in effect no

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11 *Supra* Note 2
12 *Supra* Note 3
13 *Supra* Note 4
14 Carriage by Air Act 1972,Section 3, 4 and 4A
15 *Ibid*., Section 5

other cause of action shall lie under any other law for the calculation of the amount of liability under any law.

The rules contained in the Carriage by air act 1972 are prima facie applicable to only international carriage by air. However the Central Government by notification in the official gazette can extend these rules contained in these schedules to non-international carriage as well. In pursuance of the said power, the Central Government has extended the provisions of the first[16] and the second schedule[17] to non-international carriage by air. However the Central Government has not extended the provisions of the third schedule to non-international carriage till date.

With respect to Documentation requirements the first schedule lays down certain documentation requirements with respect to contents of the passenger tickets[18] which were reduced considerably in the second schedule[19]. However with the advent of the third schedule, drastic changes were brought about in the third schedule where the documentation requirement were merely confined to the two things i.e. an indication with regards to the places of departure and destination[20] and where the places of departure and destination are within the territory of a single State Party, one or more agreed stopping places being within the territory of another State, an

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16 Notification of the Official Gazette No. 186 E, dated March 30, 1973
17 Notification of the Official Gazette No. 186 E as amended by SO 1885, dated July 5, 1980
18 Carriage by Air Act 1972,First Schedule, Rule 3
19 Carriage by Air Act 1972, Second Schedule, Rule 3
20 Carriage by Air Act 1972, Third Schedule Rule 3 (a)

indication of at least one of such stopping places[21]. Due to technological development it is no longer required under the tickets needs to be personally delivered. The tickets can be delivered in any other means which can save and retain the information so considered[22]. Similarly the passenger shall also be handed over a baggage identification tag for each piece of checked in baggage[23]. The third schedule has also reduced the documentation requirements with respect to the carriage of cargo and holds that the cargo receipt or the airway bill should contain an indication of the places of departure and destination, agreed stopping places and an indication of the weight of the consignment.

Another important aspect of the legislation is the liability for Death and Compensation. Like the previous legislations on the air carrier liability, the carrier shall be liable for damages sustained in the event of death or wounding of a passenger if the accident which caused the damage so sustained took place on board or during embarking and disembarking. Therefore the Rule 17 of all the three schedules gives the passengers, his estate or heirs a cause of action against a carrier for bodily injury caused by an accident while on board or during embarking or disembarking.

Further the first and the second schedule makes the carrier liable for any damage sustained in the event of destruction or loss of or

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[21] Carriage by Air Act 1972, Third Schedule,Rule 3 (b)
[22] Carriage by Air Act 1972, Third Schedule,Rule 3 (2)
[23] Carriage by Air Act 1972, Third Schedule,Rule 3 (3)

damage to, any checked baggage and goods or cargo, if the occurrence which caused the damage so sustained took place during transportation by air. This provision essentially provides a cause of action against the carrier for any event that causes loss or damage to cargo, baggage and goods which have been checked with the airline. It raises a presumption of liability of the carrier for destruction, loss or damage to goods or checked luggage. The third schedule separately deals with goods and cargo[24] and makes a separate provision for checked in and unchecked baggage[25]. It for the first time recognised the liability of the carrier for unchecked baggage.

With the objective of balancing the protection of rights of both the passengers as well as the air carriers certain defences were introduced in the first schedule and which was later modified in the second and third schedule. On a cursory glance at the entire legislation, one would notice the three separate sets of defences for the carriers to contest their claim for compensation under the Act. These defences kept on changing with the technological developments and change in the underlying principle of liability in the third schedule. Under the third schedule, a common defence which the carrier could raise for resisting any claim for compensation under the Act is the defence of contributory negligence. Where the carrier proves that the damage was caused by or contributed to by the negligence of the injured person, the

[24] Carriage by Air Act 1972, Third Schedule, Rule 18
[25] *Ibid.*, Third Schedule, Rule 17(2)

court may in accordance with the provisions of its own law exonerate the carrier either wholly or partly from his liability. This is one common defence which is applicable to all the cases of personnel injury, death, damage or loss of goods and delay of passenger and goods. The defence of contributory negligence is an all or nothing defence.

However, in the cases of death or personnel injury under Rule 17, the carrier is entitled, for any claim beyond 100, 000 SDR, to raise the defence that the damage that has been alleged to have been occurred was not due to negligence or other wrongful act or omission of the carrier or its servants or agents or such damage was solely due to negligence or other wrongful act or omission of the third party[26].

In case of loss or damage or destruction to cargo, a carrier is entitled to raise one of the four defences available with the carrier i.e.

- There was an inherent defect, quality or vice of that cargo
- Act of War and Armed Conflict
- That the defective packing of that cargo performed by a person other than the carrier or its servants or agents.

[26] *Ibid.*, Rule 21(1)

- The loss was due to an act of war or armed conflict and lastly the loss was due to an act of public authority carried out in connection with the entry, exit or transit of the cargo[27].

As far as the damage or loss or destruction or checked baggage is concerned, the carrier is entitled to claim the defence that the baggage in question suffered a damage due to an inherent defect, quality or vice of the baggage[28]

The first and the second schedule puts a limit on the maximum amount of compensation which the carrier would be liable to pay. As per the first schedule, this amount was 125, 000[29] francs which was increased upto 250, 000 francs in the second schedule[30]. This was however subjected to the successful establishment of the defence. The third schedule brings path breaking changes with regards to the limits on the liability and lays down that for any damages arising under Rule 17 (1) not exceeding 100, 000 SDR for each passenger the carrier shall not be able to exclude or limit its liability[31]. But for claims arising beyond 100, 000 SDR, the carrier may have certain defences[32]. The repercussions and interpretation of this provision is discussed in the subsequent chapters. For loss, destruction or damage sustained with respect to baggage, the liability of the carrier shall be limited to the extent of 1, 000 SDR

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27 *Id.,* Rule 18(2)
28 *Id.,* Rule 17 (2)
29 Carriage by Air Act 1972, First Schedule, Rule 22
30 Carriage by Air Act 1972, Second Schedule, Rule 22
31 Carriage by Air Act 1972, Third Schedule, Rule 21(1)
32 *Ibid.* Rule 21 (2)

for each passenger unless the passenger during the time of check in had made a special declaration with regards to the value of the contents in which case, the carrier shall be entitled to pay a compensation to the extent of the declared sum[33]. For loss, destruction or damage sustained with respect to cargo, the liability of the carrier shall be limited to the extent of a sum of 17 SDR per kilogram unless the consignor at the time of handing over the consignment or the cargo has made a special declaration with regards to the value of the contents in which case, the carrier shall be entitled to pay a compensation to the extent of the declared sum[34].

A novel concept of Advance Payment was also introduced under the Montreal Convention[35] according to which in the cases of aircraft accidents which result in death or personnel injury to the passengers, the carrier shall, if so required by its national law, make advance payment to the natural person or persons who are entitled claim compensation in order to meet the immediate economic needs of such persons[36]. However the provision also clarifies that payment shall not constitute as recognition of liability and may be offset against any amounts subsequently paid as damages by the carrier.

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33 *Id.*, Rule 22 (2)
34 *Id.*, Rule 22 (3)
35 *Supra* Note 4
36 *Supra* Note 45, Rule 28

For the matters of jurisdiction a claimant or the heirs of the deceased passengers must bring an action for damages suffered under Rule 17, 18 and 19 of the first and the second schedules, in the territory of one of the High Contracting Parties, either before the Court having jurisdiction where the carrier is ordinarily resident, or has his principal place of business, or has an establishment by which the contract has been made or before the Court having jurisdiction at the place of destination[37]. Under the third schedule, keeping with the purpose of being a consumer centric legislation, the third schedule provides an additional jurisdiction for the purposes of bringing an action against the carrier for damages suffered in the cases of death or personnel injury. Rule 33 of the third schedule entitles a claimant to bring a suit against the carrier in a place where in the territory of a State Party in which at the time of the accident the passenger has his or her principal and permanent residence and to or from which the carrier operates services for the carriage of passengers by air, either on its own aircraft, or on another carrier's aircraft pursuant to a commercial agreement, and in which that carrier conducts its business of carriage of passengers by air from premises leased or owned by the carrier itself or by another carrier with which it has a commercial agreement[38]. In the third schedule, the consignor is entitled to enter into arbitration agreement under any of the five

[37] Carriage by Air Act 1972,first and the second schedule, Rule 28
[38] Carriage by Air Act 1972, Third Schedule, Rule 33 (1)

jurisdictions specified under Rule 33[39]. A limitation period of two years has also been prescribed[40].

CRITIQUE OF THE THIRD SCHEDULE

Many of these criticisms have not arisen till date in the Indian context but that is primarily because the third schedule has been recently acceded to and till date there is just one case which has arisen under the third schedule.

Not Applicable to Internal Carriage by Air

The Government of India upon acceding to the Montreal Convention 1999, in pursuance of its international obligation extended the provision of the same in the domestic legal system by incorporation into the third schedule. However mere incorporation does not ipso facto extends the provision of the third schedule to internal or domestic carriage by air. The government has to issue a notification in the official gazette for the same, thereby announcing the extension of the provision to domestic carriage[41]. However there has been no such notification till date in the official gazette extending the provision of the third schedule to domestic carriage by air. Consequently, the domestic carriage in India is governed by the first and the second schedule of the Carriage by Air Act 1972 whereas on the other hand the international carriage is governed by the third schedule of the Carriage by Air Act 1972. This leads to an

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[39] *Ibid.*, Third Schedule, Rule 34
[40] Carriage by Air Act 1972, Third Schedule, Rule 35
[41] Carriage by Air Act 1972,Section 8

unjustified and inequitable discrimination between passengers of international carriage and passengers of domestic carriage. Such discrimination can be explained with the help of an illustration. For instance international flight is operating from Dubai to Kolkata with a stopover at New Delhi. Unfortunately, the aircraft crashes with passengers and crew on board during the time it was travelling from New Delhi to Kolkata. The international passengers who are travelling from Dubai to Kolkata will be governed by the rules of the third schedule, whereas the domestic passengers who are traveling from New Delhi to Kolkata will be governed by the rules of the second schedule. As a result the carrier's liability with respect to international passenger is unlimited whereas its liability with respect to domestic passengers is limited to the extent of limits prescribed under the second schedule. Similarly different types of defences are available to the carriers at the time when they contest the claim for compensation made by international passengers and domestic passengers and given the vast difference in the nature of the defences available to the carrier under the first and the second schedule on one hand and the third schedule on the other, it would be comparatively easier for the carrier to escape its liability in the cases of compensation made by the domestic passenger in comparison to the international passengers. Apart from these two instances of unjustified discrimination which the non-application of the third schedule to domestic carriage results in, all the benefits brought about by the application of the third schedule doesn't apply to passengers of

domestic carriage. Such discrimination is completely unreasonable and unjustified and puts the passengers of domestic carriage at an unfair disadvantage. There is also a misconception that the internal carriage by air is still regulated by the third schedule even in the judiciary. In the Mangalore air crash case[42], the Single Bench of the Madras High Court has opined that the domestic carriage by India is governed by the third schedule[43]. However this mistake was recently adverted with the passing of Carriage by Air (Amendment) Act 2015 which included the Montreal Convention of 1999 within the realm of the said legislation in the form of the Third Schedule.

Documentation Requirement

As pointed out previously, the third schedule drastically reduces the documentation requirement with respect to both passenger tickets as well as the airway bills primarily due to the fact that the detailed information with regards to the passenger tickets or baggage tickets or airway bill can now be stored electronically and the same has been recognised as a legally valid. It also makes provision for any future means which can be used to store and deliver such information. However as explained in the previous point, the Government of India has not extended the provision of the third schedule to the domestic carriage by air and the same is thus governed by the first and the second schedule of the Carriage

[42] National Aviation Company Of India Limited v. S.Abdul Salam, WA.No. 1197 of 2011

[43] *Ibid.*, paragraph 7

by Air Act 1972. Despite this, the air carrier in practice have adopted the rules laid down in the third schedule with regards to the documentation requirements as far as the passenger tickets and airway bill are concerned under domestic carriage is concerned. While issuing passenger tickets or the airway bills, the air carrier follow the rules laid down in the third schedule in regards to the documentation and content requirements, irrespective of the fact that domestic carriage till date is governed by the first and the second schedule. Unfortunately such a practice has not been challenged till date. However this mistake was recently adverted with the passing of Carriage by Air (Amendment) Act 2015 which included the Montreal Convention of 1999 within the realm of the said legislation in the form of the Third Schedule.

Liability for Passenger's Death or Personnel Injury

A dispute or debate with respect to the interpretation of the provision which provides for compensation for death or personnel injury of a passenger came into a controversial limelight in the very first case it was applied. The provision for compensation merely states that the damages that arise out of death of a passenger or personnel injury to a passenger which is caused to a passenger due to any accident which is caused either on board or during embarking or disembarking, not exceeding 100, 000 SDR for each passenger, the carrier shall not be able to exclude or limit its liability[44]. But for claims of damages beyond 100, 000 SDR,

[44] *Supra* Note 40

carrier has certain defences[45]. In *National Aviation Company of India Limited v. S. Abdul Salam*[46]case, this provision was subjected to two reasonably valid but conflicting grounds of interpretation which has led to a wide debate as to the correct interpretation of the provision. According to the first arguments which was made by the claimants and affirmed by the Single Bench of the Madras High Court was that Rule 21 (1) provides for an unlimited extent of liability and that in the event of death or personnel injury suffered by a passenger due to any accident occurred when the passenger was on board the carrier is strictly liable to pay a minimum amount of 100, 000 SDR to the claimants and in case the nature of damages is established to be beyond 100, 000 SDR, then the carrier shall be liable to pay any additional amount which is so established to be beyond in excess of 100, 000 SDR. However this argument suffers from a number of controversial interpretations. Firstly, if the drafters intended to provide for a strict liability of minimum of 100, 000 SDR then that would in effect make a carrier liable to pay 100, 000 SDRs in the case of death as well as in the case of personnel injury, however minor that might be. Therefore again in effect, the legislators, going by this interpretation intended to equate the damages suffered in the event of death of a passenger with the damages suffered by a passenger due to personnel injury received by that passenger in any accident which takes place on board or during embarkation or disembarkation. Practically

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45 *Ibid.*
46 *Supra* Note 42

speaking in such cases, the carrier shall be liable to pay 100, 000 SDRs to the heirs of the deceased passengers and the same liability shall apply for those passengers who suffer a minor injury like a small scratch. Hence this interpretation has been criticized on the grounds that equating the damages suffered in the event of death of a passenger and damages suffered by a passenger due to personnel injury is not justifiable and would in effect create unimaginable amount of financial burden on the carrier and the carrier might go bankrupt in no time.

A stronger argument has been put for by the National Aviation Company of India Limited which was confirmed by the Division Bench of the Madras High Court in this case. They primarily contended that the provision indeed removes any limit on the liability in the event of death or personnel injury which a passenger suffers in any accident which takes place on board the aircraft or during embarking or disembarking. However it does not provide a strict liability of minimum 100, 000 SDR. Had this been the intention of the drafters then they would not have made a provision for advance payment because in the event of any accident the carrier would have been liable to pay a minimum of 100, 000SDR irrespective of the actual amount of damages suffered. There would not have been any justification behind providing for an advance payment had the carrier was by default liable to pay a minimum of 100, 000 SDRs. Had that been the case, then the carrier should ideally pay 100, 000 SDR as soon as the accident occurs and thereafter go in for litigation if the claimants claim any

amount over and above this 100, 000 SDRs. But according to the carriers, this cannot be a correct interpretation of this provision. The very existence of a separate provision for advance payment with no express mention with respect to a minimum amount of advance payment indicates that the drafters did not intend that there should be a minimum compensation of 100, 000 SDRs in the event of death or personnel injury which a passenger suffers in any accident which takes place on board the aircraft or during embarking or disembarking. The provision unlike the first and the second schedule, indeed removes the limit prescribed on the liability of the carrier, but the carrier is only liable to pay to the extent of the actual damages which are established to have been suffered. Further they also substantiated their contention by pointing out that Rule 21 nowhere uses the term minimum or maximum amount of liability unlike Rule 22 which actually prescribes a limit on the carrier's liability for loss, destruction or damage to goods or baggage or any damage suffered in the event of delay. Therefore the provision does not provide for any minimum or maximum amount of liability. The carrier is liable to pay only the actual damages suffered which can be proved by the claimant. Rule 21 merely puts an embargo on the right of the carrier to claim certain defences.

However there is no final conclusion to this controversial interpretation. The plaintiffs have appealed to the decision of the Division Bench and the appeal is currently pending before the Supreme Court of India. The plaintiffs modified their arguments

contending that the carrier is liable to pay a minimum of 100, 000 SDR in the event of death of a passenger. However as far as the personnel injury is concerned, the carrier is liable to pay only till the extent of actual damages suffered. Unless the Supreme Court comes with a final verdict on the matter, this provision will remain to be one of the most controversial aspects of the third schedule.

Advance Payment

As discussed above, the provision for advance payment provides that, in the cases of aircraft accidents which result in death or personnel injury to the passengers, the carrier shall, if so required by its national law, make advanced payment without to the natural person or persons who are entitled claim compensation in order to meet the immediate economic needs of such persons[47]. Indeed it is a novel concept passed with the intention to providing the dependents of the deceased passengers or the injured passenger with some immediate economic relief, nevertheless the provision is so loosely worded that it has the potential to be misused. The very first problem with the provision of advance payment is that there are no guidelines indicating the factors on the basis of which the so called advance payment has to be made. As a result, the carrier may choose to be guided by any factors they deem right. This was seen in the Mangalore air crash case, wherein the National Aviation Company of India Limited, the defendants made the advance payment on the basis of economic loss, age and income of

[47] Carriage by Air Act 1972, Third Schedule, Rule 28

the passengers, the extent of damages suffered, etc. These factors are usually considered under the tort law for the purposes of determining the amount of compensation to be paid to the heirs of a deceased person. As a result, the amount of advance payment varied from Rs 5, 00, 000/- to 10, 00, 000/-. One of the issues in the case was whether such factors can be considered for the purposes of determining the amount of compensation. Though the Single Bench held in negative, but the Division Bench of the Madras High Court accepted these factors as proper factors to be considered. However the matter at present is pending before the Supreme Court. Nevertheless, unless certain factors are identified on the basis of which this advance payment can be made, the carrier can rely on any factor existing under other laws for the purposes of calculating the amount of compensation, or may even develop some guidelines on the basis of which such advance payment has to be made.

The rule of advance payment not only fails to provide for concrete or indicative guidelines for the purposes of making advance payment, it also fails to provide for a minimum amount of advance payment. Consequently, the carriers in the event of any aircraft accident may pay a small meagre amount as advance payment and thereafter prefer to contest the claim for final compensation in the court. A pertinent point to note here is that the carriers are financially sound and can bear the burden of contesting the claims in the courts of India for years together. However it cannot be denied that the not all the passengers would have the equivalent

financial capacity to contest a claim for compensation for such a long time. The carrier in pursuance of its obligation may pay a small meagre amount as advance payment and thereafter go on contesting the claim in the court. Many at times, such meagre amount of advance payment may not be sufficient enough to meet the immediate economic needs of the heirs of the deceased passenger or the injured passenger. Hence the entire bonafide objective behind the provision has the potential to be defeated at the hands of the carrier.

Another argument which has been widely made with regards to the interpretation of the provision is that the provision clearly states that the advance payment has to be made, if required by the national law, in the cases of aircraft accidents. There has been an international debate on the interpretation of the term 'aircraft accident'[48]. Many argue that the term 'aircraft accident' has been deliberately included to mean and have a restrictive application i.e. the carrier is not entitled to pay advance payment for each and every case of accident where in a passenger dies or suffers any injury either on board or during embarking or disembarking[49]. The term 'accident' under Rule 28 is preceded by the word 'aircraft' and hence the scholars argue that a serious nature of accident was

[48] Pablo Mendes De Leon and Werner Eyskens, *The Montreal Convention: Analysis of Some Aspects of the Attempted Modernization And Consolidation Of The Warsaw System*, 66 J. Air L. & Com. 1155 2000-2001, See also Idorenyin Edet Amana, *The Montreal Convention of 1999: Problems And Prospects*, Unpublished LLM Dissertation, Institute of Air and Space Law, McGrill University, March 2002, (Last Visited September 2, 2013), See also, Elmar Guiemala, MONTREAL CONVENTION,

[49] *Ibid.*

contemplated by the drafters when they provided for advance payment. Nevertheless, even these arguments are very vague and unsupported. The interpretation of the term aircraft accident becomes all the more difficult due to the absence of any provision defining the meaning or explaining the scope of the same. Hence the provision of advance payment suffers from the vice of being very loosely worded and carries the potential of being misused.

Burden of Proof for Establishing Damage due to Delay has reduced

Under the first and the second schedule in order to avoid damages claimed by the carrier, the burden is on the carrier to show that the carrier had taken all necessary measures to reduce or avoid the damage[50]. However under the third schedule, the carrier for the purposes of contesting the claim, the carrier has to establish that he has taken all reasonable steps to avoid the accident which caused the delay[51]. Hence the burden of proof has reduced and the carrier has all the more scope to escape his liability. Therefore provisions like these takes away the benefit intended to be accorded to consumer protection legislation.

Reduction of the Severity of Sanction for Non-Compliance with Documentation Requirement

With regards to the carriage of cargo, the first and second schedule has enormous requirements as far as the documentation was

[50] Carriage by Air Act 1972, First and Second Schedule, Rule 20 (1)
[51] Carriage by Air Act 1972, Third Schedule, Rule 19

concerned[52]. If the carrier fails to comply with any of the conditions and subsequently any accident or event occurs wherein the cargo is damaged, lost or destroyed, then the carrier shall be liable and the limits prescribed shall not be applicable[53]. Hence if the carrier did not comply with the documentation requirement with respect to cargo and thereafter if the consignor suffers any damage due to damage loss or destruction of the cargo, then the carrier could not have been able to take the benefit of the limits prescribed on the liability and would have been liable to an unlimited extent. However under the third schedule, this severity has been taken off. The documentation requirement has been drastically reduced and so is the sanction ensuring the compliance with these requirements. Under the third schedule, a carrier in the cases of failure to comply with the provisions of documentation with respect to cargo or rather cargo receipts or airway bills and in the event of any loss, destruction or damage to the cargo, the carrier shall be liable but subject to the limit prescribed in the schedule[54] i.e. to the extent of 17 SDRs per kilogram[55]. Therefore the third schedule in effect takes away the severity of sanction which existed under the first and the second schedule which ensured that the carrier take special attention and care in complying with the documentation requirements with respect to the cargo. This might even lead to problems for deciding

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52 Carriage by Air Act 1972, First and Second Schedule, Rule 4 to 8
53 *Ibid.* Rule 9
54 *Supra* Note 52,Rule 9
55 *Ibid.*, Rule 22(3)

compensation. For instance the carrier fails to record the weight of the consignment or cargo and subsequently a part of the consignment is destroyed. Unless the carrier maintains a proper and legally acceptable record of the weight of the consignment, there would not be conclusive means to determine the same. In such cases the question or rather debate with regards to the quantum of compensation which the carrier is entitled to pay may arise.

Jurisdiction

The first and the second schedule incorporated the four jurisdictions as the appropriate forums where the a claimant can bring an action for the damage suffered on account of death of a passenger, personnel injury to a passenger, loss, destruction or damage to goods and luggage or delay. These jurisdictions are the courts having jurisdiction where the carrier is ordinarily resident, or has his principal place of business, or has an establishment by which the contract has been made or before the Court having jurisdiction at the place of destination[56]. With the advent of the third schedule, a fifth jurisdiction was incorporated keeping in mind the objective of the giving a better protection to the users of the air carrier services. Hence the passengers or the heirs of the deceased passengers were given the option of filing a claim for compensation in either of the four or five jurisdiction respectively. However according to the current practice adopted by the carriers,

[56] *Supra* Note 52, Rule 28

the entire beneficial purpose behind providing numerous jurisdictions has been defeated. In the present times, the carriers very categorically include an ***exclusive jurisdiction clause*** as a part of its terms and conditions. Such clauses restrict the forum to one of the four or five above mentioned jurisdictions, as the case may be, where a claimant can bring an action for the purposes of claiming damages or compensation for the damage suffered under the Carriage by Air Act 1972. Though such exclusive jurisdiction clauses are often challenged before the courts but its validity has been upheld by the courts in numerous judgments. In *Interglobe Aviation Limited v. N Satchidanand*[57]the Supreme Court relying upon an precedent[58] observed that so long as the parties to a contract do not oust the jurisdiction of all the courts which would otherwise have a jurisdiction to decide the cause of action under the law, it cannot be said that the parties have by their contract ousted the jurisdiction of the court by agreeing to submit their dispute to only one or few of the competent jurisdiction. However if on the other hand the parties agree to submit their dispute to a jurisdiction which would not otherwise be a proper jurisdiction to decide the dispute arising out of contract, then such clause must be declared void as being against public policy[59]. The court in the present case also observed that the exclusive jurisdiction clause is a standard clause which is made applicable to all the contracts of

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[57] Interglobe Aviation Limited v. N Satchidanand, Civil Appeal No. 4925 of 2011

[58] A.B.C Lambart (P) Limited v. A.P. Agencies 1989 2 SCC 163

[59] *Ibid.*, paragraph 14

carriage irrespective of the place where the cause of action arose[60]. Such exclusive jurisdiction clause is further supported by the fact that there is nothing in the three schedules which would otherwise prohibit the carrier from restricting the application of the multiple jurisdictions for the purposes of entertaining a case for compensation. Hence the carriers have commonly adopted this practice of depriving the consumers of the benefit of having the multiple jurisdictions as their options and ultimately defeating the objective behind providing numerous jurisdictions.

Another grey area with respect to the jurisdiction which remains unresolved till date is with respect to the determination of jurisdiction in the cases of online booking. Such a problem may arise in those cases where the exclusive jurisdiction clause in not included as a part of the terms and conditions of a contract of carriage. Practically speaking amongst all the four or five jurisdictions the most common and convenient jurisdiction which a claimant invokes for the purposes of claiming damages under the Carriage by Air Act 1972 is the jurisdiction where the contract of carriage has been concluded. However in the cases of online booking the web page of the carrier is used for making a confirmed reservation. In such cases of online booking it is very difficult to determine where the other contractual partner is located. Location of the server cannot be regarded as an appropriate place where the contract of carriage has been included or where the principle place

[60] *Ibid.*

of the carrier can be regarded to have been located. Hence determining the jurisdiction in the cases on online or electronic booking is a dicey and a grey area till date.

Arbitration

The third schedule entitles the consignor to enter into arbitration with the carrier for the purposes of settling a claim for compensation for the damage suffered due to loss, damage or destruction of cargo[61]. Though a novel concept incorporated with the intention of providing a better protection to the consumers and giving them an option for an inexpensive and speedy remedy to their dispute, but the provision suffers from various lacunae of its own. First of all it is limited to claim for compensation for loss, damage or destruction suffered to cargo. The provision of arbitration could have been extended to other cases of damage as well. But there is no justification for not doing so. Going by the underlying principle and objective of providing a better protection to consumer, the provision for arbitration could have been extended to other cases as well. In fact they would have been more useful in the cases of determination and settlement of amount of compensation in the cases of death or personnel injury to the passenger where in an early settlement would always be beneficial. Secondly, another problem is with regards to the place of arbitration. Rule 34 categorically states that the arbitration should take place at any one of the location specified under Rule 33. Rule

[61] *Supra* Note 52, Rule 34

33 has provides for five jurisdiction including the fifth jurisdiction which can be exclusively invoked only in the cases of death or personnel injury to a passenger. This implies that if a consignor prefers to pursue ordinary litigation for the purposes of claiming compensation, he or she has the option of four jurisdictions, but if the same consignor prefers to enter into arbitration proceedings, then that person has the option of conducting the proceedings at any of the five jurisdictions including a forum which is ideally available for only claiming compensation for death or personnel injury. Such discrimination is uncalled and unjustified and unreasonable.

CONCLUSION

India has the proud history of having engaged into general and civil aviation at a very early stage. However absence of a proper, concrete legislation to govern the liability of the air carrier had always handicapped the judiciary in making a justifiable determination of the cases which related to the fixing the quantum of relief that should have been granted in the cases of death or personnel injury to a passenger or in the cases of damage, loss or destruction to goods and cargo. Therefore there was a dire need to have a legal framework which would provide for a liability regime to fix and govern the liability of the air carriers in the above mentioned circumstances.

With the advent of the Carriage by Air Act 1972, this need was met and India had a concrete liability regime for the purposes of

governing liability of the air carriers. As India went ahead with subsequent ratification and accession of the Warsaw Convention as amended by the Hague Protocol and the Montreal Convention 1999, respectively, India in pursuance of its international obligations undertaken under these international conventions, incorporated the provisions of these conventions by way of incorporating the same in three schedules annexed to the main text of the Carriage by Air Act 1972. This legislation along with its schedules was a unique legislation in itself and provided a concrete liability regime. It brought predictability and certainty in the air carrier's liability regime by fixing the cases and the maximum limit on the liability of the air carrier. It was highly appreciated for its clarity as it clearly demarcated the jurisdictions where the cases against air carriers which arises under this legislation can be brought about and most importantly it specifically excluded the provision of the other domestic legislations or tort law which governed the determination of the amount of compensation in the cases of death of a passenger. Its mandatory requirement of states ensuring that the carriers take adequate insurance and provision for advance payment if the same is required by the national law, were novel concepts introduced to ensure that the consumers of the air services and/or their dependents are not left without adequate financial relief in the event of death of such consumers or personnel injury or damage, loss or destruction of the goods or cargo of such consumers.

However despite being much needed relief, the third schedule of the Carriage by Air Act 1972 still suffers from numerous lacunae which come in the path of providing justice to the consumers who suffer a loss under this legislation. These impediments or lacunae's have been discussed above. One of the chief reasons for the same is the generality of the provisions. The first and foremost reason behind these impediments lies the failure on the part of the drafters of the Carriage by Air Act 1972 to realize that the international conventions merely provide for general provision or a broad framework containing the essential principles and means of fixation of liability and determination of the amount of compensation. Any international convention can never provide for a stringent or strict and detailed legal framework for governing air carrier's liability otherwise it would not receive enough participation and would in many cases be taken as a means to endanger the sovereignty of a state. Whenever a state party to an international convention, in pursuance of its obligations undertaken therein, incorporates the provision of the same in the domestic legal framework, it has to supplement the same by way of detailed rules and regulations for the purposes of the effective implementation of the principle contained in the conventions and consequently fulfil its international commitments undertaken therein in the true sense. However the drafters failed to realize this fundamental concept behind ratification of the international conventions. This claim can be further substantiated by the second reason which is contained in the Preamble of the Carriage by Air

Act 1972. The Preamble of the act, which lays down the primary objective and often the guiding principle behind the Act, clearly specifies the sole reason behind enactment of this legislation is to meet the commitments undertaken by India under the Warsaw Conventions, Warsaw Convention as amended by the Hague Protocol and the Montreal Convention of 1999, instead of providing for a justified regime to govern air carrier's liability in India. Meeting of international commitments by way of domestic legislation is indeed essential but cannot be the sole objective. The international conventions were enacted for the prime purpose of providing adequate financial relief to the consumers of air services and not to ensure that the state parties follow the black letters of the conventions without understanding the spirit behind the same. The drafters failed to realize that a concrete domestic legislation to govern the liability of the air carriers in the cases of death or personnel injury or in the cases of loss, destruction or damage to goods and luggage was required to provide a better protection to the consumers of the air services and guarantee adequate financial relief in the cases that may arise under the act. Rather for the drafters the chief and the only reason behind having this regime is to meet its international commitments. As a result the verbatim copy of the international conventions in the domestic legal framework, the present liability regime is very general and vague and till date remains un-supplemented by detailed rules and regulations. The generality of the provisions have given rise to numerous ambiguous interpretations of very crucial provisions.

Consequently these ambiguous provisions carry the potential of being misused by the air carriers in order to escape their liability under the act and the entire objective behind providing a better protection to the consumers can be said to have been defeated.

OPEN SKIES POLICY: PROBLEMS AND PERSPECTIVES

Shreya Mishra[*]

Abstract

The making of an 'Open Skies' regime began with the need for military transparency in the aftermath of the Cold War between NATO and Warsaw blocs, after the Second World War. Owing to a spurt in air transportation because of widespread movement of people across continents and countries, the need for expanding the notion of Open Skies was felt in civil aviation. As a result, it has assumed significance in terms of its socio-economic, environmental, legal and technical effects. The Open Skies policy was largely formulated in order to simplify transnational aviation, but of late, it has given rise to certain complications in the realm of international aviation law, which cannot be overlooked. They have conspicuous ramifications on the nations, which are competing with and against each other in order to achieve a desired level of progress. This paper attempts to address some of the problems identifiable with the Open Skies policy. Furthermore, with the rise of new supra-national blocs or regional groups, Open Skies policy has gathered even more attention. Any regional or transnational bloc is identified by a defined set of rules and regulations, and a sound Open Skies policy could be instrumental in not only bolstering their combined growth, but could also be advantageous to the various communities which belong to these groups of nations. Countries which are in the proximate region but not part of any blocs, such as India, are placed at a

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precarious position which also needs to be examined in the context of the Open Skies policy. Through the analysis of various dimensions of the Open Skies policy, the paper aims to throw light on some new perspectives that have been begotten or are in the formative stages.

TOWARDS OPEN SKIES POLICY: HISTORICAL BACKGROUND

Creation of the ICAO

The need for an international organization was manifested at the outset of an accelerated development of aviation during World War II, in order to assist and regulate international flight for peaceful purposes, covering all aspects of flying, including technical, economic, and legal problems. For these reasons, in early 1944, the United States conducted exploratory discussions with its World War II allies, on the basis of which invitations were sent to 55 allied and neutral states to meet in Chicago in November 1944.[1]

In November and December 1944, delegates of 52 nations met at the International Civil Aviation Conference in Chicago to plan for international cooperation in the field of air navigation in the post-war era. It was this conference that framed the constitution of the International Civil Aviation Organization—the Convention on International Civil Aviation, also called the Chicago Convention.

[1] "The International Civil Aviation Organisation (ICAO)", Worldmark Encyclopedia of Nations. 2007, *Encyclopedia.com,* http://www.encyclopedia.com (accessed March 15, 2015).

This convention stipulated that ICAO would come into being after the convention was ratified by 26 nations.

The convention established for the first time an independent international body, the International Civil Aviation Organization, to supervise "order in the air," obtain maximum technical standardization for international aviation, recommend certain practices that member countries should follow, and carry out other functions. By ratification or accession to the convention, the countries displayed conformity to the standards enumerated by the ICAO.[2]

Formulation of the Two Freedoms Agreement and Five Freedoms Agreement

A satisfactory agreement could not be reached on the crucial question of exchange of commercial rights in international civil aviation. It was resolved through two supplementary agreements adopted by the conference: the International Air Services Transit Agreement[3] and the International Air Transport Agreement[4]. These two treaties (Two Freedoms and Five Freedoms agreement respectively) do not form part of the ICAO constitution and are binding only on the ICAO member states that have ratified them.[5] Beyond the fifth freedom, the ICAO characterizes all freedoms as

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2 *Ibid.*

3 ICAO. http://www.icao.int/Pages/freedomsAir.aspx (accessed March 3, 2015).

4 Elizabeth Hope, *Ethical Issues in Aviation* (USA: Ashgate, 2011), 44-46.

5 *Ibid.*

'so-called' because only five freedoms are recognized by the international treaty.[6] .

The Open Skies Policy

During the making of the ICAO Convention in 1944, although the United States had not wanted a regime that enumerated provisions that were more than recommendatory in nature, President Eisenhower mooted the idea of an 'open skies' regime in 1955. As an aftermath of the formation of the ICAO, bilateral agreements began to be conceived. Thus, according to the ICAO, the bilateral agreement signed between the United States and the United Kingdom (known as the "Bermuda Agreement") established the precedent for the framework of bilateral agreements that take place today.[7] These bilateral agreements were casually referred to as 'open skies' agreements. But there are marked differences in a proper 'open skies' agreement and a bilateral agreement. There are virtually no restrictions with respect to fares, flight frequencies, number of carriers, etc in an open skies arrangement, whereas there are significant restrictions in bilateral agreements. Although a proper open skies agreement did not take form till 1992 (between the United States and the Netherlands), the United States realised

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6 The seventh freedom, which grants that service need not connect to or be an extension of any service to/from the Home State of the carrier, has become contentious in the recent times.

7 "International Aviation agreements: The pursuit of truly open skies Case study: US-EU open skies policy". http://www1. american.edu/ted/open-skies.htm (accessed January 28, 2015).

the importance of an open skies regime in the military aviation, and it mooted the idea.

The Open Skies policy was mooted by President Eisenhower of United States in the backdrop of the cold war period between the NATO and the Warsaw military groups in 1955.[8] It was not received very positively by the Soviet Union at that time. After over three decades, the idea was revived in 1989. During the subsequent conferences, countries came up with what was known as the tentative "basic elements" [9] of the policy. It aimed at establishing a regime of military transparency among nations, at facilitating better communication between the countries through photographic information conveyed to a group of countries, and most importantly, at building trust among nations, in order to avoid the aftermath of the two World Wars.[10] What started as an idea to test arms control verification was also seen as a tool for benefitting the East European nations that could not afford indigenous intelligence satellites. Thus, the Open Skies was an issue that was concerned with areas like security, intelligence and aviation. On paper, it seemed like a well-founded plan, but in practice, it meant finding a middle-path between the sovereignty and national security of a nation and the harmonization and openness in the field of international aviation.

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8 Jonathan B. Tucker, "Back to the Future: The Open Skies Talks", *Arms Control Today* vol. 20, no.8 (1990): n. pag.

9 *Ibid.*

10 *Ibid.*

ASSOCIATED PROBLEMS

The Open Skies policy was largely created in order to simplify the international aviation, but of late, it has given rise to certain complications in the realm of international aviation law, which cannot be overlooked. They have conspicuous impacts on the nations, which are competing with and against each other in order to achieve a desired level of progress. The magnitude of these problems cannot be underestimated especially when the ramifications shall be borne by more than one nation. Some of the associated problems shall be discussed in this chapter.

Environmental Issues

Often environmental issues take a backseat, but the environmental impacts of the growing air transportation cannot be ignored, especially in a decade where every nation is striving to become environmentally conscious. The Treaty was created in 1992, when awareness related to environmental issues was at a low, nor was the amount of emissions rising at a catastrophic pace. For instance, carbon emissions by a country and carbon footprint of aircrafts have become critical points of discussion for most climate-conscious nations. Of more importance than the carbon footprint is the GHG (Greenhouse Gases) footprint, because it is more accurate and comprises of gases in addition to carbon dioxide.

Aircrafts have come under the scanner nowadays for a specific problem, because there is a demand for low-cost, high-energy, and environment-friendly aviation turbine fuel. But it is rather

paradoxical that the newly flown aircrafts which are fuel-efficient lead to the production of cirrus clouds from the contrails.[11] This happens because fuels which emit less heat create cooler conditions which are conducive for contrail formation. These clouds reflect the sun's rays and warm the atmosphere, giving rise to global warming. The situation is looming large over most countries. In addition, increased air traffic implies undesirable levels of noise pollution and air pollution. The developed nations have a larger share of burden because their emissions started way back in the eighteenth and nineteenth centuries, with the onset of the Industrial Revolution. This is the most important reason why nations are engaging in research work to discover and invent clean, less-emitting fuels, which will not only benefit the automobile industry, but also benefit the aviation industry.

Legal and Technical conflicts between nations

Open Skies Policy agreements are not bereft of the legal and/or technical issues that may arise in due course of time. Following are some instances where certain issues have imparted significant lessons to the international community:

i) Issue of access to Heathrow (Bermuda Agreement)

The issue of access to Heathrow Airport was a major point of contention as per the provisions of the Bermuda Agreement. The US carriers wanted access to Heathrow, but only two airlines-American Airways and United Airlines were allowed that access.

[11] *supra* note 7.

The rest of the US carriers, which wanted the same access felt restricted. On the contrary, UK had certain reservations about surrendering slots at Heathrow to more than two transatlantic competitors, and UK was "reluctant to relinquish negotiating power to the European Commission for creation of EU-US common aviation area for fear of losing its authority". [12]

The issue was resolved in a landmark judgment[13] of the European Court of Justice (ECJ). The US and the UK eventually signed an Air Transport Agreement in 2007, which came into force in March 2008. This agreement created a single Transatlantic Open Aviation Area replacing the individual bilateral agreements between the US and the EU States.

ii) Unequal sharing of benefits arising from the EU-US agreement

Even thought the conflict arising from the Bermuda Agreement got resolved through the resultant agreement which came into force in 2008, it did not come without its own defects. The agreement was to be carried out in two phases: Phase 1 involved carrying out the provisions of the agreement, and Phase 2 comprised of the

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[12] *Ibid.*

[13] Case C-466/98 *Commission V. United Kingdom[2002] ECR I-9427*, Case C-467/98 *Commission V. Denmark [2002] ECR I-9519*, Case C-468/98 *Commission V. Sweden [2002] ECR I-9575*, Case C-469/98 *Commission V. Finland [2002] ECR I-9627*, Case C-471/98 *Commission V. Belgium [2002] ECR I-9681*, Case C-472/98 *Commission V. Luxembourg [2002] ECR I-9741*, Case C-475/98 *Commission V. Austria [2002] ECR I-9797*, and Case C-476/98 *Commission V. Germany [2002] ECR I-9855*. *See also* European Commission. *Open Sky Agreements: Commission Welcomes European Court of Justice Ruling*. *European Commission Press Release*, http://europa.eu/rapid/press-release_IP-02-1609_en.htm (accessed March 3, 2015).

obligation to further liberalize the agreement. Also, it was provided in the 'Suspension Clause' that the Parties which signed Phase 1 could terminate it if there was no agreement reached between US and EU negotiators on Phase 2, which was supposed to be in place by 2010, i.e., they (EU States individually) had the right to withdraw flying rights to U.S. carriers if they were dissatisfied with progress. [14] EU airlines mainly had two contentions:

- They complained that the agreement unfairly favoured US carriers.US held 49 percent of voting shares of the EU carriers. EU held a maximum of 25 percent of voting shares of the US carriers. British Airways and Virgin Atlantic, both the airlines which had lost immensely after opening up Heathrow,[15] argued that they would exercise the right provided under the Suspension Clause unless Washington allowed EU airlines to increase ownership and control of US carriers. [16]
- They also argued that the US did not allow the EU carriers any access to the US Market (i.e. cabotage) but allowed US carriers the right to carry passengers between EU member states as a 5th freedom service. [17]

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[14] Ian Kincaid, "EU-US Open Skies- The European perspective", *InterVISTAS-E.U*, April 2008. http://www.intervistas.com/downloads/CAIR/articles/04_apr2008_h.pdf (accessed March 3, 2015).

[15] K.G. Kumar, "Open Skies over Heathrow", *The Economic and Political Weekly*, vol. 26, no. 27/28 (1991) http://www.jstor.org/stable/4398119 (accessed January 19, 2015).

[16] *Ibid.*

[17] *Ibid.*

(iii) Certification Controversy

Certification of the first Russian digital camera triggered a major controversy among two parties and a seven-month blockade of the Informal Working Group on Sensors (IWGS) of the Open Skies Consultative Commission (OSCC), created under the Open Skies Treaty. On 2 July 2013, Russia invited all parties of the treaty to the certification event for Russian digital aerial camera on board an Antonov aircraft . Most of the certification steps-- inflight-data, ground inspection, resolution reading, determination of minimum flight altitude—were carried on smoothly. But the US representatives requested permission to use devices of their own which could record all software operations while the camera was being operated and during data processing into the final format. This was declined by Russia. Consequently, US did not give its signature, and since any certification requires consensus of all parties participating in the event, the Treaty use of Russian camera was put on hold. Two weeks turned into seven months, and on October 29, US tabled certain conditions, which were rejected by Russia on 13 November 2013. White House was confronted with the alternative of either quitting the Open Skies Treaty or of certifying Russian cameras for use in Europe only.[18]

[18] Hartwig Spitzer, "Open Skies update: Cooperative transparency agreement works in stormy times", *Verification, Implementation and Compliance*, October 17, 2014, http://www.armscontrolverification.org/2014/10/open-skies-update-cooperative.html (accessed February 21, 2015).

The matter was finally decided in National Security Council. Eventually, US approved with the understanding that this certification would not be equal to a precedent for any certification in the future.

Competition/Antitrust issues

Generally, key provisions of open skies agreements comprise of : free market competition, which means no restriction on the rights of designated international routes, number of designated airlines, capacity, frequencies, and types of aircraft; pricing determined by market forces such as demand and supply in order to ensure competition; fair and equal opportunity of all carriers of the countries involved; non-discriminatory fares and user charges; cooperative code-sharing agreements or lease arrangements, optional 7th freedom all-cargo rights, safety considerations, and liberal charter arrangements. [19] Free marker competition generally implies lower fares for consumers in the transatlantic market, because it offers a wide variety of options to choose from. It often leads to increased trade, tourism and cultural exchange through travel. But as of 2015, it is believed that "open skies agreements entered into between governments around the world are under attack by some US and EU airlines that seek to block new competition".[20] Eg- aggressive campaign to block Norwegian Air

[19] *supra* note 7.

[20] Dada Mail, BTC Press List., *OpenSkies.travel To Promote Open Skies Policies And Robust Aviation*, http://businesstravelcoalition.com/cgi-bin/dada/mail.cgi/archive/travel_industry/20150122140731/ (accessed March 3, 2015).

International's application to serve the US. Also, it is believed that over the course of two decades, many airlines used the Open Skies policies to secure immunity from antitrust and competition laws for their global alliances while simultaneously insisting on consolidation of the industry through significant mergers and acquisitions (M&As). [21]

On the contrary, if the competition gets increased to undesired levels, many airlines may start compromising on their safety and security considerations, or may indulge in practices such as cost-cutting. For instance, buying and using low-quality aviation turbine fuel in order to cut the overall costs in order to meet their own consumer requirements. Such practices may have adverse consequences for the airlines and consumers as well as for the entire aviation sector.

Social and Economic Issues

Any international aviation agreement, whether bilateral or multilateral, has significant effect on the consumers as well as the airline employees. Open Skies policy caters to a larger population, comprising of two or more countries, and thus it can either develop or lead to a downfall in the financial and social conditions of the consumers and employees, depending upon a wide-ranging amount of factors, including ownership, geopolitical issues, international disputes, etc. For instance, airline regulation has serious impact on the functioning of the airport and airline staff, resulting in

[21] *Ibid.*

congested airports. An open skies agreement could have negative repercussions on the airline employees, should it call for a change in foreign ownership restrictions. This would mean that if country A and B want to form an open skies agreement, and if B is permitted to buy A's carriers, the jobs of people in country A could be lost to their counterparts in country B and vice-versa as corporate jobs are shipped abroad. On the other hand, successful marketing strategies can reverse the whole situation. Interesting and consumer-oriented advertising campaigns often ensure an influx of many tourists, generating higher revenues.

PERSPECTIVES SURROUNDING OPEN SKIES POLICY

The outreach of the Open Skies policy is not limited to only a few nations, and the purview of the agreements that are being created at the international level is widening. It encompasses many regions, regional groups, or regional blocs which are all aiming at expanding their interests outside the immediate neighbourhood. But with such objectives arise certain issues specific to the groups or countries involved. These issues offer wider perspectives and a different angle, from which to study the Open Skies policy. Some perspectives relating to Open Skies policy are as under:

Establishment of the TCAA

The 2008 Air Transport Agreement between the European Union and the United States, known as the Open Skies agreement, is a landmark accord that opened up commercial opportunities in the

air transport market between the EU and the US and further improves the regulatory cooperation between both partners.

Potential benefits from removing regulatory obstacles to the EU-US transatlantic aviation market include up to 80,000 new jobs; millions of additional passengers on transatlantic flights; billions of dollars in savings thanks to the elimination of bilateral agreements and their restrictions on traffic rights; and growth in the cargo market.

According to Hamit Osman, the main elements of the US-EU Air Transport Agreement include-"extensive traffic rights and commercial-operation matters, rights relating to ownership and control, unlimited code sharing between EU, US and third country airlines, 'community carrier' concept which permits EU airlines to operate to the US from any point in the EU, regulatory co-operation, establishment of a Joint Committee, US acceptance to guarantee European Computer Reservation Systems (CRS) providers the right to operate in the US, and the provisional application of the agreement from 28 October 2007." [22]

Although a very laudable initiative by both sides, the agreement is fraught with certain problems especially with respect to changing the ownership rules which may cause friction between the US and the EU state. The TCAA ignores the veracity of the current aviation relationship between the European Union and the United

[22] Hamit Osman, "New EU-USA Air Transport Agreement –Is Turkey EU's next target?" http://www.mfa.gov.tr/new-eu-_-usa-air-transport-agreement---is-turkey-eu_s-next-target_-.tr.mfa (accessed March 5, 2015).

States and many scholars and analysts predict that it may fail. It is easier to cooperate as and among Member States, but it is difficult to keep up a common aviation market between the European Union and United States. It can be iterated that "[c]ooperation under an Open Aviation Agreement should work to establish commonalities, but must also work to respect differences."[23]

ASEAN and Open Skies policy

ASEAN (Association of South East Asian Nations) is a regional bloc, comprising of Indonesia, Vietnam, Philippines, Laos, Cambodia, Thailand, Myanmar, Singapore, and Malaysia. ASEAN shall be striving for a Single Aviation Market (SAM) by December 2015, according to the self-imposed deadline decided by it. There is one considerable difference between the ASEAN and the EU: air transport integration measures have automatic force of law in the EU, whereas ASEAN's market access liberalisation is pursued through agreements that the member states must voluntarily accept.

- Multilateral Agreement on Air Services (MAAS) contains two relevant protocols that free up $3^{rd}/4^{th}/5^{th}$ freedom operations respectively between capital cities only. Due to intra-regional differences, the achievement of a Single Aviation Market is being delayed.

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[23] Erwin Steinen, *National Interest and International Aviation* (Alphen aan den Rijn: Kluwer Law International, 2006), 105-110.

- There are problems relating to 7th freedom (the right to fly between two foreign countries while not offering flights to one's own country). Eg- an Italian company running a flight between Kuala Lumpur and Jakarta. Thus, the ASEAN "is contemplating negotiations as a bloc with bigger markets without having created a true single market in its own backyard first." [24]

- ASEAN-China agreement already exists since 2011. ASEAN carriers can fly to China only from their home points. In contrast, Chinese carriers can fly to ASEAN from any point in China. Its network penetration will be larger than any individual ASEAN carriers. To neutralise this advantage, a carrier from an ASEAN country must be able to connect any other ASEAN point with any point in China. But this cannot be made possible without the ASEAN states according each other the 7th freedom right to China.[25]

- Indonesia has yet to accept the relevant protocols under the second agreement, the Multilateral Agreement for the Full Liberalisation of Passenger Air Services (MAFLPAS), which means rights into points other than Jakarta remain restricted by the prevailing bilateral air services agreements. Laos is

[24] "As 2015 Nears, ASEAN's Single Aviation Market Must Gear up for New but Harder Phase." *Airline Leader* 25 (2014): n. pag., http://www.airlineleader.com/categories/feature/as-2015-nears-aseans-single-aviation-market-must-gear-up-for-new-but-harder-phase-193965 (accessed March 10, 2015).

[25] *Ibid.*

another ASEAN state that has not accepted the MAFPLAS protocols. But Philippines has accepted them to open up all its secondary cities while keeping Manila restricted.

Thus, all the factors indicate that for ASEAN to devise a post-2015 plan inclusive of liberalisation and harmonisation, it has to take into consideration 7th freedom rights, domestic cabotage rights, ownership and control rules, competition law regimes, consumer protection policies, and safety and technical requirements.[26]

India and Open Skies Policy

Before India opened up its economy in 1991, the civil aviation sector in India was confronted with scarcity in international air cargo capacity. In order to resolve the issue, the government reformed the air cargo sector in 1986 by allowing operators to provide on-demand services.[27] This was the beginning of an 'Open Skies Policy' for cargo in India. It was formally adopted in 1990 for a limited period of 3 years, and was extended in 1992 on a permanent basis.[28] As regards an Open Skies policy for passenger-related operations, India presently has an Open Skies agreement (2005) with the United States of America, which replaced an earlier bilateral agreement of 1956[29]; and limited Open Skies pacts

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[26] *Ibid.*

[27] ICAO Secretariat, "India's Open Skies Policy on Air Cargo", *ICAO*, February 2003, http://www.icao.int/sustainability/CaseStudies/StatesReplies/India_En.pdf (accessed March 10, 2016).

[28] *Ibid.*

[29] Manisha Singhal, "Open Skies Policy Will Help Airlines Cut Costs and Be More Efficient", *Business Today*. May 26, 2014,

with the United Kingdom[30] and ASEAN countries. This also raised questions on the viability of having open skies agreements with other nations, which was among the many concerns addressed through the draft civil aviation policy (2015). The draft civil aviation policy tries to remove many bottlenecks in the sector. The present proposal envisages an Open Skies regime for countries beyond 5,000-km radius of Delhi, with no restrictions on number of seats or flights.[31] The prescribed distance essentially indicates Europe and SAARC nations. Within the radius of 5,000-km, the flying rights will be auctioned. The 5/20 rule--under which only those flights which have been operating in India for five years and have a fleet of atleast 20 aircraft can start international operations--has been left open for discussion in the policy.

The policy is speculated to come into effect from April 1, 2016. It will definitely boost the tourism and trade sector, but it does come with its additional clauses. The 5/20 rule has become a bone of contention among groups which are divided on the issue of continuation of the rule.[32] If the rule is continued, airlines such as

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http://businesstoday.intoday.in/story/open-skies-policy-will-help-airlines-cut-costs/1/206587.html (accessed March 6, 2015).

30 Restrictions with respect to frequencies. Somesh Jha, "Open-sky policy leaves out landing freedom", *Business Standard*. November 7, 2015, http://www.business-standard.com/article/economy-policy/open-sky-policy-leaves-out-landing-freedom-115110700023_1.html (accessed March 9, 2016).

31 *Ibid.*

32 "Removal of 5/20 norm would lead to higher airfares: FIA", *The Economic Times*, February 24, 2016, http://economictimes.indiatimes.com/industry/transportation/airlines-/-

Vistara and Air Asia will have to wait till they can start international operations. Furthermore, the terms and conditions of open skies agreements will vary. For instance, there will not be a limit on the number of seats, but landing destinations could be limited on a reciprocal basis.[33] The policy is silent on the issue of high service charges, air turbine fuel (ATF) charges, and taxes, which in combination raise airfares dramatically.[34]

Aviation analysts, though, envision more gains than losses. Among Indian airline operators, Air India and Jet Airways are slated to be the biggest gainers, as they are only airlines capable of flying long routes.[35] The policy will also benefit airlines from Europe, Australia, and South America which will be able to operate their airlines without restrictions. Within the 5,000-km radius, the Gulf countries and West Asian and South-east Asian countries will be able to increase frequency of flights to and from India, and India can gain from incoming auction proceeds.[36] Increased competition will help reduce the cost of air turbine fuel and subsequently, the cost of air travel. The release of the new policy will concur with

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aviation/removal-of-5/20-norm-would-lead-to-higher-airfares-fia/articleshow/51111710.cms (accessed March 10, 2016).

33 *supra* note 30.

34 "Open skies gets a push in draft aviation policy", *Business Standard*, October 31, 2015, http://www.business-standard.com/article/economy-policy/open-skies-get-a-push-in-draft-aviation-policy-115103100036_1.html (accessed March 9, 2016).

35 Ashwini Phadnis, "India may open skies to countries more than 5,000 km away", *The Hindu Business Line*, July 28, 2015, http://www.thehindubusinessline.com/economy/logistics/india-may-open-skies-to-countries-more-than-5000-km-away/article7474558.ece (accessed on March 9, 2016).

36 *supra* note 34.

the development of new regional trade agreements such as the Trans-Pacific Partnership (TPP)[37], Transatlantic Trade and Investment Partnership (TTIP)[38], and Regional Comprehensive Economic Partnership (RCEP)[39]. In the light of such challenges, India will also be pushed towards enhancing local and international quality standards, thus accruing large benefits in the process.[40] The initiative to open the skies is perhaps the most important postulate of the draft policy, and aligned with the government's vision to adopt an 'Open Sky policy' with all countries in the world from 2020.[41]

CONCLUSION

Open Skies policy has come a long way from its inception in the 1990s. It has been a very laudable initiative that has taken under its purview many dimensions, spreading across various regions in the world. In order for it to survive the problems that crop up every

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[37] The Trans-Pacific Partnership (TPP) is a trade agreement among twelve Pacific Rim countries: Brunei, Chile, New Zealand, Singapore, Australia, Canada, Japan, Malaysia, Mexico, Peru, the United States, and Vietnam signed in 2016.

[38] The Transatlantic Trade and Investment Partnership (TTIP) is considered a companion agreement to the TPP. It is a proposed trade agreement between the European Union and the United States.

[39] RCEP has been envisaged as a comprehensive free trade agreement (FTA) between the existing ASEAN nations (Brunei, Myanmar, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, Vietnam) and nations with which ASEAN has existing FTAs (Australia, China, India, Japan, South Korea and New Zealand).

[40] Asit Ranjan Mishra, "India expresses concerns over mega regional trade pacts", *Livemint*, April 23, 2015, http://www.livemint.com/Politics/hpjv5J4Bj0xtdfgn6ejDzO/India-expresses-concerns-over-mega-regional-trade-pacts.html (accessed March 10, 2015).

[41] *supra* note 34.

now and then, the issues have to be taken care of, otherwise it may create problems similar to those in the aftermath of the formation of the TCAA. Discussions and consultations should be held prior to the agreement. New level of vigilance is required to maintain the integrity of Open Skies agreements, otherwise benefits will be at a risk--prices may shoot higher, decline in customer service, restricted connectivity, etc. From an environmental perspective, efforts should be made in research and development to create aviation turbine fuels that are cost-effective as well as eco-friendly. Competition policies need to be looked at while drafting agreements, and before coming to a conclusion that is agreeable to all. Open Skies policy has indeed helped to expand the global market and curbed dispute between nations. The upcoming regional associations such as Trans-Pacific Partnership (TPP), and Regional Comprehensive Economic Partnership (RCEP) are new entrants to the regional groupings and may enhance the functioning of the existing blocs such as ASEAN through increased competition. Countries such as India, Pakistan and Bangladesh should also leverage their strengths and open up their skies for better advantages. Open Skies are the future of a truly globalized world as the policy has survived many challenges-- the certification controversy, competition issues inter alia-- and hence, it has withstood the test of time and countries should make endeavours to make its success a constant feature in the future.

STUDYING PARADIGMS IN NATIONAL SPACE LEGISLATIONS: SEARCHING FOR A BASIC LEGAL FRAMEWORK IN INDIA

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Abstract

It might come as a surprise to many but it is true that the world is at the brink of a third industrial revolution, ready to actively consider and explore the possibility of 'shifting base' to live and work in outer space. Indeed the advancements in space research now afford new avenues of space exploration both by public and private entities. However the potential of commercial outer space activities remains underutilized by many space research capable countries. While the possibilities of commercialization of outer space activities are enormous it must be remembered that these imply not only technological advancements and legal consequences too. India as a nation has been actively pursuing space research and over the past few years, since the successful launching of the 'Chandrayaan 1' and the 'Mangalyaan', the world's perception of India's outer space capacity has changed dramatically. From being considered nascent in its space research capabilities to making significant strides in the field of space sciences, India has come a long way. In fact the Government of India's active support of the country's space program has given it the necessary boost. However with achievement comes responsibility, accountability and liability and consequently the need for a robust, strong legal framework that spells out clearly the rules and regulations governing

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outer space exploration and determination of liability in commercial activities. To this end the article seeks to explore different jurisdictions like Russia, US and France to analyze the space law in these countries and to find common parameters that will help in the drafting of a comprehensive national space legislation for India. In doing so, this study evolves certain basic principles that are important for the development of a national space law to legislate upon commercial activities in outer space.

INTRODUCTION

While all nations are guarded by sovereignty, international borders and defined territories with respect to resources in the land, sea and air, every nation is free to explore space per the Outer Space Treaty 1967 (hereafter referred to as OST 1967). Space has been declared as the 'province of mankind' and therefore no sovereign right shall be applicable in space and no acquisition of territory is possible in space.[1] Space is largely governed by international law principles developed through a series of international law instruments agreed to by consensus by the nations. [2] However,

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[1] Joanne Irene Gabrynowicz and Jacqueline EtilSerrao, "An Introduction to Space Law for Decision Makers," *Journal of Space Law*, vol.30 (2004): 233.

[2] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty]; G.A. Res.2222 (XXI) (Dec. 19, 1966) (adopted on Dec. 19, 1966, opened for signature on Jan. 27, 1967, entered into force on Oct. 10,1967).
Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119; G.A. Res. 2345 (XXII) (Dec. 19, 1967) (adopted on Dec. 19, 1967,opened for signature on Apr. 22, 1968, entered into force on Dec. 3, 1968).
Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 24 U.S.T. 2389, 961U.N.T.S. 187; G.A. Res. 2777 (XXVI)

some space advanced countries have developed their own national laws to regulate their domestic activities with regard to space. In its current position, India needs robust space laws legislation and therefore it is imperative to look into various space legislations of different countries that have been successfully pursuing commercial activities in space for a length of time. It is also essential to understand the legal framework of different jurisdictions which may help us ascertain the determination of liability for commercial outer space activities. It must be stated that the international legal development in this sphere is in its nascent stage and hence, finding a clear answer for the determination of liability in international law is impossible.

It is important to note that Articles VI and VII of the OST 1967 and Article II and III of the Liability Convention 1972 shift the burden of liability onto the launching state for any kind of outer space activities. And so it becomes important to assess and review the national laws of different countries, about their legal arrangements for the determination of liability in commercial outer space activities.

(Nov. 29, 1971) (adopted on Nov. 29, 1971, opened for signature on Mar. 29, 1972, entered into force on Sept. 1, 1972).

Convention on Registration of Objects Launched into Outer Space, Nov. 12, 1974, 28 U.S.T. 695, 1023 U.N.T.S.15; G.A. Res. 3235 (XXIX) (Nov. 12, 1974) (adopted on Nov. 12, 1974, opened for signature on Jan. 14, 1975, entered into force on Sept. 15, 1976).

Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, G.A. Res. 34/68, Dec. 5, 1979 (opened for signature on 18 Dec. 1979, entered into force on 11 July 1984).

For the last fifteen years, India has been considered a dominant player in the field of outer space science and technology with the. Indian Space Research Organization (ISRO) making many strides as an entity. Antrix, the commercial wing of ISRO has successfully launched 45 foreign satellites of other countries into outer space. Apart from this, Antrix has also extended its success in other commercial activities such as remote sensing, selling of space objects and mission support etc.

Considering this development, the government of India has begun initiating steps for the drafting of a national space legislation that will help in better governance of commercial outer space activities in India.

This is seminal because though there is no doubt that the ISRO has tasted extraordinary success in outer space exploration yet it is also true that there is no comprehensive legal development with respect to space law in India.

India has by far enacted the SatCom Policy 2000 and the Remote Sensing Policy 2011.While the SatCom Policy 2000 provides the essential framework for obtaining licenses for outer space exploration, the Remote Sensing Data Policy 2011 monitors the availability of remote sensing data for developmental purposes. Apart from this, India is a signatory to and has ratified four international space law Conventions (namely, the Outer Space Treaty1967, the Rescue Treaty 1969, the Liability Treaty 1972, and the Registration Treaty 1975) and is therefore duty bound to

develop a clear legal framework for itself. However, it is pertinent to note that to overcome this lacuna the government of India is in consultation with various stake holders for drafting a national space legislation policy aimed at controlling and promoting commercial outer space activities from India.

The present paper is divided into four sections. The first part deals with the rationale behind choosing space laws of different jurisdictions for the analysis of liability for commercial activities. The second part deals with the discussion on space laws of different countries. This discussion is followed by an inference from different national space law for determining the liability for commercial outer space activities. The countries selected for analysis are Australia, US, UK, Russia, China and France.

RATIONALE FOR SELECTING DIFFERENT JURISDICTIONS

Although formal commercial use of outer space began in the early 1980s, it had its beginnings in the US, where from the early 1960s, the US had begun giving licenses to different agencies for carrying out commercial outer space activities. The first commercial satellite launched by the US was '*Telstar 1*',[3] which was used for live television broadcasting across the Atlantic Ocean.[4] Interestingly, '*Telstar 1*'was the first privately sponsored space

[3] https://launiusr.wordpress.com/2014/06/13/the-first-commercial-space-activity-communications-satellites/ (accessed October 21, 2015).

[4] A.C Dickieson, "The Telstar Experiment,"*Bell Labs Technical Journal* (1963).

launch that was financed by AT&T and Bell and Bell Telephone Laboratories. By the year 1966, the erstwhile Soviet Union had launched its first commercial satellite called '*Orbita*' into outer space, also for broadcasting purposes.[5]Not surprisingly, by the end of the decade (1960-1969), many private companies in the US had begun commercially exploring outer space activities in the areas of television broadcasting, telephone, fax and weather forecasting. Another important event was the foundation of 'Arianespace' in 1980 at France that intended to provide commercial launch facility worldwide. Today, Arianespace is considered the leading private company in the world, specialists in launching heavy satellites into outer space on a commercial basis.[6]Other private companies in the US include XCOR,[7] SpaceX,[8] Virgin Galactic[9] etc. that are also working on the commercial exploration of outer space. However Russia remains the pioneer in commercial satellite launching over the last four decades particularly in small satellite launching.

While in the last forty years, the US, France, UK and Russia have shown the world, their success in space exploration and have raked in huge profits by exploring outer space for commercial purposes, the recent years have seen Australia, China and India also offering commercial outer space exploration services to other countries. However superior skill and advancements in technology have

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5 Delbart D Smith, *Communication via Satellite: A Vision in Retrospect* (sijthoff, 1976).

6 http://www.arianespace.com/index/index.asp (accessed August 24, 2015).

7 http://www.xcor.com/ (accessed August 24, 2015).

8 http://www.spacex.com/ (accessed August 24, 2015).

9 http://www.virgingalactic.com/ (accessed August 24, 2015).

made sure that the outer space market remains heavily dependent on France, US and Russia. Australia and China too have showcased their capabilities as well as invested heavily in the field. And hence the emphasis on reviewing the national space law of these countries to analyze methods of determination of liability in commercial outer space activities and the working of the domestic legal framework.

EXISTING LAWS IN AUSTRALIA, CHINA, RUSSIA, FRANCE, UK AND US ON COMMERCIALIZATION ACTIVITIES IN OUTER SPACE

Australia enacted its national space legislation in the year 1998and fulfilled its international obligation which it had made while signing international space law agreements, The Peoples Republic of China has also enacted national space regulations and different measures for the governance of outer space activities from China. These are referred to as the Interim Measures on the Administration of Permits for Civil Space Launch Projects of 21 December 2002 and Interim Measures on Administration of Mitigation of and Protection Against Space Debris 2006.

Furthermore, France enacted its space legislation in the year 2008 calling it the French Space Operations Act, No 2008-518 (2008). Other important legislations include the Decree No.2009-644 of 9 June 2009, modifying Decree No.84-510 of 28 June 1984, relating

to CNES, Decree No. 2009-643 of 9 June 2008, Decree No. 2009-640 of 9 June 2009.[10]

Russia had enacted its national space legislation right after the fall of the erstwhile Soviet Union. Its legislation is called the Law on Space Activity, Federal Law No. 5663-1 (1993, as amended), and the Statute on Licensing Space Operations, Federal Government Decree No. 104 (1996).[11] The UK legislates through its Outer Space Act 1986.[12]The US is one of the first states to have enacted national space legislation for dealing with the commercial outer space exploration. It is referred to as 51 U.S. Code Chapter 509-Commercial Space Launch Activities. Additionally the US has also adopted the US National Space Policy in 2010.[13]

Relevant Provisions on Liability under the Laws of the Above Countries

The determination of liability is perhaps one of the most difficult areas in outer space commercial activity. While space is considered the ' province of mankind', it is important that countries that are exploring commercial possibilities in space and offering these services to other nations for their betterment, must not incur losses and must be able to safeguard their interests so that further advancements may be encouraged for the greater good of mankind Therefore it is ideal that there be an analysis of the various

[10] http://www.unoosa.org/oosa/en/ourwork/spacelaw/nationalspacelaw/index.html (accessed September 15, 2015).
[11] *Ibid.*
[12] *Ibid.*
[13] *Ibid.*

provisions of different national space laws so as to arrive at common parameters for determination of liability in commercial outer space exploration.

Russian Federation

Russian space law was enacted in the year 1993 soon after the collapse of the Soviet Union. The name of the Act is Law of the Russian Federation "About Space Activity" 1993. The Act has 30 articles and seven sections.[14] The objective of the Act is to control any kind of outer space activities directly connected with the exploration of outer space and other celestial bodies.[15] The Act aims to regulate satellite communication, manufacturing of materials and products for outer space activities and the launching of space objects into outer space (Article 2).[16] Any activities by any Russian organization or citizen will be governed by this Act. Apart from any activities undertaken by a Russian citizen, any foreign organization will also be covered by this Act (Article

[14] http://www.unoosa.org/oosa/en/ourwork/spacelaw/nationalspacelaw/russian_federation/decree_5663-1_E.html (accessed November 22, 2015).

[15] *supra* note 16, p. 315.

[16] Article 2. The Concept of Space Activity
1. For purposes of this Law space activity shall be defined as any activity immediately connected with operations to explore and use outer space, including the Moon and other celestial bodies. Space activity shall include: space researches; remote sensing of the Earth from outer space, including environmental monitoring and meteorology; use of navigation, topographical and geodesic satellite systems; piloted space missions; manufacturing of materials and other products in outer space; other kinds of activity performed with the aid of space technology.
2. Space activity comprises creating (including development, manufacture and test), as well as using and transferring of space techniques, space technology, other products and services necessary for carrying out space activity.

9).[17]According to Article 6 of the Act, the Russian Space Agency has the power to issue licenses for outer space activities. Article 9 of the Act describes the procedure for issuing of licenses under this Act. The licenses can be issued to Russian/foreign citizen, organizations (Article 9.1).[18] The activities for which licenses will be issued include tests, manufacture, storage, preparation for launching or launching of space objects and controlling of space flight. The types, forms, issue and cancellation of licenses will be determined by the concerned Russian Federation laws. Any kind of outer space activities by any organization or individual without license is punishable under this Act (Article 9).[19] Most importantly, Article 9.4 of the Act says that any kind of dispute relating to issue or cancellation of licenses will be dealt with by Russian courts or any arbitration tribunal.[20] Article 10 of the Act speaks about the certification of space technology. According to

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[17] Article 9: Licensing of Space Activity
1. This Law shall establish a licensing (permission) procedure for the pursuit of space activity in scientific and national-economy purpose.
2. Subject to licensing shall be space activity of organizations and citizens of Russian Federation or space activity of foreign organizations and citizens under the jurisdiction of Russian Federation, if such activity includes tests, manufacture, storage, preparation for launching and launching of space objects, as well as control over space flights.
3. Types, forms, and terms of licenses, the conditions and procedures for their issue, withholding, suspension or termination, as well as other questions of licensing shall be regulated by the legislation of Russian Federation.
4. Carrying out space activity by an organization or a citizen without a license or in wilful violation of the terms of the license shall be punishable by virtue of the legislation of Russian Federation.
5. The actions of the state bodies to license space activity may be claimed in the court of law or in the arbitration tribunal.

[18] *Ibid*.

[19] *Ibid*.

[20] *Ibid*.

this article, any agency or organization can develop space science or technology for the economic benefit of the country. Based on the requirement, the Russian Space Agency will certify their activities. If they fail to fulfill the obligations, their certification can be cancelled.

With respect to continuing supervision over the non-governmental entities, the Russian Federation's legislation has the scope for supervision over non-governmental entities. A non-governmental organization has to obtain a license from the Russian Space Agency to work in the space manufacturing and launching industry. It is notable that Russia is one of the most successful launching countries for small satellites. It has a robust and continuous monitoring system for supervision of non-governmental organizations. Any kind of violation is liable to attract cancellation of these licenses (Article 24).[21]

According to Article 17, the Russian Federation has a registry for the registration of space objects. Any objects registered in Russian registry will be under the mandatory jurisdiction of the Russian

[21] Article 24: Search-and-Rescue, Clean-up of Accidents
1. Search-and-rescue works, as well as clean-up of an accident while carrying out space activity shall be accomplished by appropriate state services with the participation of bodies of state power and administration of relevant subjects of Russian Federation, local authorities, organizations and citizens.
2. Clean-up of accidents while carrying out space activity shall consist of the restoration and reconstruction of the industrial and other plants that have suffered as a result of the accidents, necessary environmental measures and compensation for damage to relevant subjects of Russian Federation, organizations and citizens.

Federation.[22] The right over the space object will remain unaffected even if the object is registered in Russia (17.3).[23] If any space object is jointly manufactured by the Russian Federation or a Russian Citizen and an international organization or a foreign citizen, the right and ownership will be decided according to the international treaty. The right, jurisdiction over the outer space or celestial bodies will not change the legal status of outer space or other celestial bodies (17.5).[24]

With regard to liability and insurance section VII and Articles 29 and 30 of the Act speak about the liability for outer space activities.[25] Article 29 empowers the Russian Government to place

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[22] Article 17: Space Objects
1. Space objects of Russian Federation shall be subject to registration and shall have markings certifying their appurtenance to Russian Federation.
2. Russian Federation shall retain jurisdiction and control over space objects registered in it, during the ground time of such objects, at any stage of a space flight or stay in outer space, on celestial bodies and also on return to the Earth outside the jurisdiction of any state.
3. The rights of ownership over space objects shall remain unaffected, during the ground time of such objects, at any stage of a space flight or stay in outer space, on celestial bodies and also on return to the Earth, unless otherwise specified in international treaties of Russian Federation.
4. If a space object is designed and manufactured by Russian organizations and citizens jointly with foreign organizations and citizens or international organizations, the issues of the registration of such object, the jurisdiction and control there over and also the issues of the rights of ownership thereof shall be decided on the basis of the appropriate international treaties.
5. The rights of jurisdiction and control over space objects, as well as of ownership thereof shall not affect the legal status of the area of outer space or the surface or subsoil of a celestial body occupied by it. In direct proximity to a space object of Russian Federation within the zone minimally necessary for ensuring safety of space activity, rules may be established that shall be binding for Russian and foreign organizations and citizens.

[23] *Ibid*.

[24] *Ibid*.

[25] Article 29: Responsibility of Officials, Organizations and Citizens

liability on any individual or organization for any violation of the Act while performing any kind of outer space activities. This liability will be determined by Russian laws.[26] According to Article 30 of the Act, the Russian Federation will bear full

State bodies and their officials, other organizations and their officials, as well as citizens guilty of violation of this Law and other legislative acts governing space activity shall be held responsible in accordance with legislation of Russian Federation.

Article 30: Liability for Damage

1. Russian Federation shall guarantee full compensation for direct damage inflicted as a result of accidents while carrying out space activity in accordance with legislation of Russian Federation.

2. Compensation for damage inflicted as a result of accidents while carrying out space activity shall be paid by the organizations and citizens responsible for operation of the space technology involved.

If such damage is the result of errors committed at the creation and use of space technology, liability for damages shall be partly of fully laid upon the appropriate organizations and citizens.

3. Liability for damages inflicted by a space object of Russian Federation within the territory of Russian Federation or outside the jurisdiction of any state, except outer space, shall arise regardless of the fault of the inflictor thereof.

If in any place, apart from the Earth surface, damage has been inflicted on a space object of Russian Federation or on property on board of such object by another space object, the liability of organizations and citizens shall emerge with their being at fault and in proportion to their fault.

Should liability for damage inflicted by a space object of Russian Federation attach to several organizations and citizens, the injured party may claim for a compensation to all such organizations and citizens or to any of them.

In the latter case, the organization or the citizen that has indemnified for the damage shall have the right of recourse against the correspondents, whose liability shall be apportioned according to the degree of their fault, and if it is impossible to establish the fault - equally.

4. The liability of organizations and citizens participating in the creation and use of space technology for damage inflicted as a result of accidents while carrying out space activity shall be limited to the amount of the insured sum or insurance indemnity provided in contracts of insurance of space technology and risks involved in space activity.

If the insured sum or insurance indemnity is insufficient for compensation for the damage inflicted as a result of accidents while carrying out space activity, recourse may be taken against the property of relevant organizations and citizens in the manner specified in the legislation of Russian Federation.

[26] *Ibid*.

responsibility for any accident, if the activity is carried out with the full compliance of the Russian Space Act 1993. The responsibility for damage will be carried out by the organization or the individual who conducted the space activity (Article 30.2).[27] The sub-clause 3 of the earlier Article 29 states that, if an accident has occurred due to an error in creation or an error in technology, then a part of the damage will be borne by the manufacturing agency. Russian legislation has ruled out the applicability of any fault based liability on earth except in outer space (30.3). Any kind of damage done to the Russian Federation space object other than earth surface shall have to bear the full responsibility for this (30.3).[28]

Articles 30.4 and 25 of the Act prescribe for mandatory insurance.[29] Article 25 directs the creation of a corpus Space Fund, that will collect the insurance premium money and in the unfortunate case of any incident, the Fund shall release the compensation amounts. Furthermore all insurance companies are required to have a license for the purpose of insuring such space activity.[30] The Article 25further states that the organization which

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[27] *Ibid*.
[28] *Ibid*.
[29] *Ibid*.
[30] Article 25: Insurance of Space Activity
1. The organizations and citizens, which exploit space technology or to whose order the creation and use of space technology in scientific and national-economy purpose is carried out, shall take compulsory insurance coverage in the amount set by legislation of Russian Federation.
Compulsory insurance shall be affected against damage to the life and health of the cosmonauts and the personnel at the ground and other objects of space infrastructure, as well as against property damage to third parties.

will carry limited insurance for risk coverage. If the compensation is in excess of the risk coverage, the compensation will have be realized from the property of the organization/person.

According to Article 22, section V of the Act, ensuring safety is one of the cornerstones in carrying out outer space activities. The space activities carried out by organizations and individuals ought to ensure the safety of the public and environment. The safety parameters shall be guided by the Ministry of Defense of Russian Federation. Article 22 has mentioned the transferring of space activities but, Russian legislation has not made any specific sections for the transfer of ownership of space objects.

The United States of America

51 U.S. Code Chapter 509- Commercial Space Launch Act 1984

The United States has been a pioneer in the field of outer space research and has taken various steps to tap into its potential for commercial uses of space research. A seminal step in this direction was taken when a formal legislation was enacted with the 51 US Code Chapter 509 coming into force. This Act was passed by the US Congress 1984 to facilitate the use of outer space technology

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Compulsory insurance premiums shall be transferred to the Russian Space Fund or other insurance companies which have obtained a license for the insurance of space activity, and shall be used to compensate for damage as a result of accidents while carrying out space activity on the basis of contracts of insurance with organizations and citizens carrying out such activity.

2. Organizations and citizens carrying out space activity may effect voluntary insurance of space technology , as well as risks connected with such activity

and science for commercial benefit by private enterprises.[31] This Act makes provisions for private enterprise interested in providing entrepreneurial service in telecommunication, remote sensing, information technology service and other allied services.[32] It recognizes the capability of the private sector to develop launch vehicles, orbital satellites, private launch sites and other services.[33] The original Act was passed on 30 October 1984.[34] It underwent amendments in the year 1988 and 2004. The Act is divided into 23 sections that deal with the outer space commerce in the US. The§ 50901 of the Act discusses its objectives.[35] According to the

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[31] *supra* note 16, p. 405. PLEASE PROVIDE COMPLETE CITATION

[32] *Ibid*, p. 373.

[33] Joanne Irene Gabrynowicz, "One Half Century and Counting: The Evolution of U.S. National Space Law and Three Long-Term Emerging Issues," *Harv. Law. & Policy Review*, vol. 4 (2010): 405.

[34] http://uscode.house.gov/view.xhtml?path=/prelim@title51/subtitle5/chapter509&edition=prelim (accessed 30 September, 2015).

[35] **§50901. Findings and purposes**

(a) Findings.—Congress finds that—

(1) the peaceful uses of outer space continue to be of great value and to offer benefits to all mankind;

(2) private applications of space technology have achieved a significant level of commercial and economic activity and offer the potential for growth in the future, particularly in the United States;

(3) new and innovative equipment and services are being sought, produced, and offered by entrepreneurs in telecommunications, information services, microgravity research, human space flight, and remote sensing technologies;

(4) the private sector in the United States has the capability of developing and providing private launching, reentry, and associated services that would complement the launching, reentry, and associated capabilities of the United States Government;

(5) the development of commercial launch vehicles, re-entry vehicles, and associated services would enable the United States to retain its competitive position internationally, contributing to the national interest and economic well-being of the United States;

(6) providing launch services and re-entry services by the private sector is consistent with the national security and foreign policy interests of the

United States and would be facilitated by stable, minimal, and appropriate regulatory guidelines that are fairly and expeditiously applied;
(7) the United States should encourage private sector launches, re-entries, and associated services and, only to the extent necessary, regulate those launches, re-entries, and services to ensure compliance with international obligations of the United States and to protect the public health and safety, safety of property, and national security and foreign policy interests of the United States;
(8) space transportation, including the establishment and operation of launch sites, re-entry sites, and complementary facilities, the providing of launch services and re-entry services, the establishment of support facilities, and the providing of support services, is an important element of the transportation system of the United States, and in connection with the commerce of the United States there is a need to develop a strong space transportation infrastructure with significant private sector involvement;
(9) the participation of State governments in encouraging and facilitating private sector involvement in space-related activity, particularly through the establishment of a space transportation-related infrastructure, including launch sites, re-entry sites, complementary facilities, and launch site and re-entry site support facilities, is in the national interest and is of significant public benefit;
(10) the goal of safely opening space to the American people and their private commercial, scientific, and cultural enterprises should guide Federal space investments, policies, and regulations;
(11) private industry has begun to develop commercial launch vehicles capable of carrying human beings into space and greater private investment in these efforts will stimulate the Nation's commercial space transportation industry as a whole;
(12) space transportation is inherently risky, and the future of the commercial human space flight industry will depend on its ability to continually improve its safety performance;
(13) a critical area of responsibility for the Department of Transportation is to regulate the operations and safety of the emerging commercial human space flight industry;
(14) the public interest is served by creating a clear legal, regulatory, and safety regime for commercial human space flight; and
(15) the regulatory standards governing human space flight must evolve as the industry matures so that regulations neither stifle technology development nor expose crew or space flight participants to avoidable risks as the public comes to expect greater safety for crew and space flight participants from the industry.
(b) Purposes.—The purposes of this chapter are—
(1) to promote economic growth and entrepreneurial activity through use of the space environment for peaceful purposes;

previous section of the Act, its purpose lay in was to recognizing the entry of private enterprise into the arena of space as a commercial venture. The Act also seeks to develop the capacity of private parties for launching, re-entering and other space related activities. According to § 50904 of the Act, the said Act shall be applicable to any launch, re-entry, or any associated activity on US territory or activities done in foreign territories but carried out in accordance with US law (§ 50904.a). In addition, any citizen or legal entity carrying out any space activity by reason of territory or by an agreement with the US Government will come under the domain of this Act (§ 50904.a).

With regard to authorization and licensing, § 50906 of the Act refers to the process of licensing and authorization. Any person applying for license or transfer of license is required to make an

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(2) to encourage the United States private sector to provide launch vehicles, reentry vehicles, and associated services by—
(A) simplifying and expediting the issuance and transfer of commercial licenses;
(B) facilitating and encouraging the use of Government-developed space technology; and
(C) promoting the continuous improvement of the safety of launch vehicles designed to carry humans, including through the issuance of regulations, to the extent permitted by this chapter;
(3) to provide that the Secretary of Transportation is to oversee and coordinate the conduct of commercial launch and reentry operations, issue permits and commercial licenses and transfer commercial licenses authorizing those operations, and protect the public health and safety, safety of property, and national security and foreign policy interests of the United States; and
(4) to facilitate the strengthening and expansion of the United States space transportation infrastructure, including the enhancement of United States launch sites and launch-site support facilities, and development of reentry sites, with Government, State, and private sector involvement, to support the full range of United States space-related activities.

application to the Secretary of Transportation for the said license. The Secretary will then decide on the application basing the decision on the parameters of public health, safety of persons, property, national security and international interest of the US. Depending on the satisfaction of these criteria, the Secretary shall, within 180 days of receiving the application, issue the license or transfer the license as the plea may be. Subsection (b) and (c) of the previous section of the Act enumerate the requirements for granting license, safety standard required for granting of license and conditions for continuation of the license. The next section of the Code makes special provisions for experimental permits. Under this section, a party can apply to the Secretary of Transportation for granting experimental permits (Experimental permit allows the holder to carry out experimental exercise for space activities).

The § 50907 of the Act acts a monitoring principle and per this section The Secretary of Transportation and/or other officers as appointed will monitor the activities of the license holder.[36] Again

[36] §50907. Monitoring activities
(a) General Requirements.—A licensee under this chapter must allow the Secretary of Transportation to place an officer or employee of the United States Government or another individual as an observer at a launch site or reentry site the licensee uses, at a production facility or assembly site a contractor of the licensee uses to produce or assemble a launch vehicle or reentry vehicle, at a site used for crew or space flight participant training, or at a site at which a payload is integrated with a launch vehicle or re-entry vehicle. The observer will monitor the activity of the licensee or contractor at the time and to the extent the Secretary considers reasonable to ensure compliance with the license or to carry out the duties of the Secretary under sections 50904(c), 50905, and 50906 of this title. A licensee must cooperate with an observer carrying out this subsection.

§ 50908 of the Act empowers the Secretary of Transportation to transfer, revoke, suspend or decide on the duration of the license.

Notably, any private party can use the remote sensing data for commercial purpose without coming under the purview of this Act. In order to do so, applicants are required to apply to the Secretary of Commerce under § 51 USC 60123. The Secretary of Commerce has been vested with the power to revoke, cancel or suspend license.

On the issue of continuing supervision over non-governmental entities according to the 51 U.S. Code Chapter 509, it is the Secretary of Transportation who has the power to continue supervision over non-governmental entities. However, for commercial remote sensing data, the Secretary of Commerce will supervise over private persons and legal entities.

Finally regarding the point about liability and insurance, a key consideration in commercial space activities, per section § 50914 of the Act, private parties are required to take insurance for any outer space activities.[37] The holder of the license ought to take the

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(b) Contracts.—To the extent provided in advance in an appropriation law, the Secretary may make a contract with a person to carry out subsection (a) of this section.

[37] §50914. Liability insurance and financial responsibility requirements
(a) General Requirements.—(1) When a launch or re-entry license is issued or transferred under this chapter, the licensee or transferee shall obtain liability insurance or demonstrate financial responsibility in amounts to compensate for the maximum probable loss from claims by—
(A) a third party for death, bodily injury, or property damage or loss resulting from an activity carried out under the license; and

maximum probable insurance for carrying out outer space activities. The Act has also incorporated the concept of limited liability and cross-waiver claims. Under limited liability, parties have to bear financial liability up to certain limit. Anything in excess of the said limit will be borne by the State. The Commercial Launch Service Act 1984 has also enumerated the monetary limits of liability by stating that the maximum limit of a third party

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(B) the United States Government against a person for damage or loss to Government property resulting from an activity carried out under the license.
(2) The Secretary of Transportation shall determine the amounts required under paragraph (1)(A) and (B) of this subsection, after consulting with the Administrator of the National Aeronautics and Space Administration, the Secretary of the Air Force, and the heads of other appropriate executive agencies.
(3) For the total claims related to one launch or reentry, a licensee or transferee is not required to obtain insurance or demonstrate financial responsibility of more than—
(A)(i) $500,000,000 under paragraph (1)(A) of this subsection; or
(ii) $100,000,000 under paragraph (1)(B) of this subsection; or
(B) the maximum liability insurance available on the world market at reasonable cost if the amount is less than the applicable amount in clause (A)(i) or (ii) of this paragraph.
(4) An insurance policy or demonstration of financial responsibility under this subsection shall protect the following, to the extent of their potential liability for involvement in launch services or reentry services, at no cost to the Government:
(A) the Government.
(B) executive agencies and personnel, contractors, and subcontractors of the Government.
(C) contractors, subcontractors, and customers of the licensee or transferee.
(D) contractors and subcontractors of the customer.
(b) Reciprocal Waiver of Claims.—(1) A launch or reentry license issued or transferred under this chapter shall contain a provision requiring the licensee or transferee to make a reciprocal waiver of claims with its contractors, subcontractors, and customers, and contractors and subcontractors of the customers, involved in launch services or reentry services under which each party to the waiver agrees to be responsible for property damage or loss it sustains, or for personal injury to, death of, or property damage or loss sustained by its own employees resulting from an activity carried out under the applicable license.

liability is up to $500,000,000 (in case of death, injury or destruction of private property).[38] The limit is up to $100,000,000 in case of damage done to governmental property.[39] However, if the amount of the damage exceeds the prescribed upper limits, the burden shall shift upon the US Government bear the excess amount after approval from US Congress.

US National Space Policy 2010

Additional to the above, the US has published its National Space Policy on 28 June 2010.[40] This policy has a separate chapter devoted to commercial outer space activities and it clearly defines the periphery of the United States National Space Policy.

According to the policy, 'The term "commercial," for the purposes of this policy refers to space goods, services, or activities provided by private sector enterprises that bear a reasonable portion of the investment risk and responsibility for the activity, operate in accordance with typical market-based incentives for controlling cost and optimizing return on investment, and have the legal capacity to offer these goods or services to existing or potential nongovernmental customers.'[41]

The policy seeks to encourage and promote outer space commerce in the US in the following ways:

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[38] *Ibid*.
[39] *Ibid*.
[40] https://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf(accessed October 25, 2015)
[41] *Ibid*.

1. Purchase and use of commercial space capabilities as long as these if these applications are available in the US market and fulfill US law requirements.
2. Modify commercial capabilities and services to meet the need of the government. The US government shall also take measures to make the commercial products cost effective.
3. The government will also engage with private players and to purchase from them and as well as associate with private operators for its own requirements. It will also work towards a private-public partnership in outer space commerce.
4. The US government will refrain from any kind of space related activities which will preclude, discourage or compete with the US commercial market unless it is in national interest.
5. The US government will transfer technology and other necessary information to private parties for cost-effective outer space commerce.
6. The government will develop entrepreneurship in outer space activities by providing incentives to private players.
7. It will allow private parties to use governmental infrastructure to the extent possible to encourage the growth of the sector.

8. It will minimize the burden of regulatory measures and strictures upon private entities to the extent possible.
9. It shall render fair, open global and suitable standards of legislation for outer space commerce.
10. The government shall encourage buying of US commercial space services in international cooperation for healthy development of this sector.
11. The US will promote commercially developed space goods and shall endeavor to make available such goods and services for use in foreign markets that are consistent with US law.

France

The French Space Operation Act 2008 was passed to facilitate space operation in France. The scope and jurisdiction of the Act applies to all launches, return and operation of space objects from the territory of France (Article 2).[42] Apart from its domestic

[42] Must first obtain an authorization issued by the administrative authority: 1. All operators, whatever their nationality, intends to launch a space object from the national territory, resources or facilities placed under French jurisdiction or intending to make a return of such an object on the national territory, on facilities or installations under French jurisdiction; 2° Any French operator which intends to launch a space object from the territory of a foreign State , means or facilities under the jurisdiction of a foreign state or an area not subject to the sovereignty of a State or intending to make a return of such objects on the territory of a foreign state, on the means or facilities under the jurisdiction of a foreign state or an area not subject to the sovereignty of a State; 3 ° all individuals possessing French nationality or legal person established in France, she Whether or not operator who intends to proceed with the

jurisdiction, the Act also applies to extra-territorial jurisdiction in certain cases. Any French operator who intends to launch or carry out any space exploration from foreign territory comes under the aegis of the Act (per Article 2).[43] Any transfer of space objects authorized under the Act also comes under the jurisdiction of the said Act (Article 3).[44] Article 2 of the Act clearly says that any act of any individual or legal person who is carrying out space exploration from French territory or who operates from France is under the jurisdiction of French law.

Chapters II, III and IV of the Act describe the principle of authorization and licensing. An authorization is granted once the administrative authority satisfies all financial and technical parameters of the application. No authorization shall be granted if the said activity is understood as being against the interest and security of France (Article 4 and 2). Article 4 of the Act places conditions on the issue of license. The conditions impose some mandatory disclosure and continuous supervision of the license holder by the administrative authority. Further, per Article 5 the

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launch of a space object or French operator intends to ensure control of such an object during its stay in outer space

[43] *Ibid.*

[44] The transfer to a third of the control of a space object subject to an authorization under this Act is subject to the prior authorization of the administrative authority.
Under the provisions of 3 of the Article 2, any French operator who intends to take control of a space object whose launching or control has not been authorized under this Act for that purpose must obtain prior authorization by the administrative authority.
The rules for implementing this Article shall be fixed by decree in Council of State

license holder is responsible for places a condition of protecting the national interest and the international obligation of France.

With respect to the principle of continuous supervision of the activities of the non-governmental entities several public authorities have been entrusted with the right to inspect in order to ascertain the fulfillment of obligations by individual or any legal entity that may have entered into the commercial space business. These authorities have been given access to the buildings, premises and facilities where such space activities are being conducted and can check any time to satisfy themselves (Article 7).[45] The

[45] I. - Those entitled to make the necessary controls to verify compliance with the obligations of this Chapter:
1. The agents commissioned by the administrative authority referred to in Article 2, under conditions determined by decree of the State Council, belonging to state services for space, defense, research, environmental or public establishments which carry out their missions in the same fields;
2. The officials authorized to carry out technical checks on aircraft;
3. The members of the Insurance Supervisory Body mentioned in Article L. 612-18 of the Monetary and Financial Code;
4. The agents mentioned in Article L. 1421-1 of the Code of Public Health;
The agents mentioned in Art 5 are bound by professional secrecy under the conditions and subject to the sanctions provided for in Articles 226-13 and 226-14 of the Penal Code.
II. - The agents mentioned, have access at all times to facilities, premises and installations where space operations are performed as well as the space object. Control operations, the spatial operator is notified that he can attend the tour and be assisted by a person of their choice, When local or part of these constitute a home, visits are allowed under the conditions defined in Article 7-1.
III. - As part of their supervisory duties, except the seizures made under the procedure provided for in Article 7-1, the agents mentioned in I may request copies of all relevant documents and things, whatever the medium. They can make copies and gather at the call or place the necessary information and evidence.
Agents can only carry documents after establishing a list countersigned by the operator. The list specifies the nature of the documents and their numbers.

concerned administrative authority can at any moment give instructions or suggest any measures for the protection of life, property and the environment (Article 8).[46] Any kind of violation may lead to fines amounting upto 200,000 Euro (Article11).[47]The

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The operator is informed by the administrative authority referred to in Article 2 suites control. It can submit its observations.

IV. - If the operator or the person entitled to grant access to the installation can be achieved or if it opposes access, agents mentioned in I may be allowed under the conditions laid down Article 7-1.

[46] Regarding the launch or control of a space object, the administrative authority or, by delegation of the latter, officials authorized by it for this purpose may at any time give such directions and impose any measures they consider necessary in the interests of safety of life and property and protect public health and the environment.

The administrative authority or authorized agents acting on its delegation consult the operator in advance, except in If there is an immediate danger.

A decree in Conseild' Etat delegation arrangements and empowerment of officials responsible for the implementation of this article

[47] I. - be punished with a fine of 200 000 euros is on:

1. For any operator, regardless of nationality, to proceed without permission to launch a space object from the country or placed means or facilities under French jurisdiction or return of such an object on the national territory or resources or facilities placed under French jurisdiction;

2. For French operator to proceed without authorization to launch a space object from the territory of a foreign State, means or facilities under the jurisdiction of a foreign state or an area not subject to the sovereignty of a State or the return of such objects on the territory of a foreign state, on the means or facilities under the jurisdiction of a foreign state or an area not subject to the sovereignty of a State;

3. For any individual possessing French nationality or legal person established in France, to proceed without permission to launch a space object or ensure control without authorization during their stay in outer space.

II. - Shall be punishable by a fine of 200 000 euros is on:

1. To transfer to a third party without authorization control of a space object whose launching or control has been authorized under this Act;

2. For French operator to take unauthorized control of a space object whose launch was not authorized under this Act.

III. - Shall be punishable by a fine of 200 000 euros does for an operator:

1. To continue the spatial operation in breach of an administrative measure or a judicial decision to stop or suspension;

fine can be imposed upon any French operation carried out from French territory or someone who carries out business from a foreign territory but its headquarters are located in France.

Regarding the next important principle that of registration of space objects per the Registration Convention 1975, keeping a registry of space objects at the national level is compulsory. Article 12 of the Act prescribes for the registration of space objects at the Centre National d'Etudes Spatiales (CNES).

On the issue of liability and insurance for outer space activities under French legislation, Article 13 of the Act says that if there is any accident on earth or in aerospace, then the operator is liable under strict liability. In case any damage other than this is done, the liability will be based on misconduct. However this liability can be avoided on the basic of proof of negligence. Articles 13, 14, 15 and 20 of the French Space Operation Act 2008 (FSOA) deal with liability for space activities. Taking into account Article VI of the Outer Space Treaty 1967, Articles II and III of the Registration Convention, and the Liability Convention, France is liable for any damage done in space activities.[48] By this France Space Operation Act 2008, France is liable for any private space activities conducted from France's land. The FSOA imposes absolute, joint and several liabilities for space activities. Article 13 of the FSOA

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2. To continue the operation Space without complying with a notice of administrative authority to comply with a prescription.
IV. - Shall be punishable by a fine of 200 000 euros does for an operator or individual to obstruct the inspections carried out pursuant to Article 7

[48] French Space Operation Act 2008.

imposes fault base liability for damage caused in outer space. The Article also places a condition of limitation on liability in the following words:[49]

> *Except in the case of a wilful misconduct, an operator's liability ends when all the obligations set out in the authorization or the license are fulfilled, or at the latest one year after the date on which these obligations should have been fulfilled. The French Government will be liable in the operator's place for damages occurring after the one-year period.*[50]

The FSOA requires an operator to obtain an insurance of up to sixty million Euro in case of damage. According to section 14 of the FSOA,[51] except in case of wilful misconduct or gross negligence, operator's liability is limited to sixty million Euro.[52] If

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[49] *Ibid.*

[50] French Space Operation Act 2008, Article 13.

[51] The operator is only responsible for damages caused to third parties because of space operations that led to the following conditions:
It is strictly liable for damage on the ground and in the air space; 2. In case damage caused elsewhere than on the ground or in the air space, its liability may be sought only for misconduct.
This responsibility can not be mitigated or avoided only by proof of negligence.
Except in cases of willful misconduct, to liability under 1 and 2 ends when all obligations attached to the authorization or license are met or, at the latest one year after the date on which such obligations have been met. The state replaces the operator for damage occurring after this period.

[52] Where under the provisions of the Treaty of 27 January 1967 on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other celestial bodies, or Convention of 29 March 1972 on International Liability for Damage Caused by Space Objects, the state has repaired damage, he may exercise recourse against the operator causing such damage has engaged the international responsibility of France,

the damage exceeds sixty million Euro, the French Government will be liable to pay the rest of the compensation (Article 15).[53] This indemnification is applicable to contractors, sub-contractors, customers and insurers. Further, if any other state sues the French government under the Liability Convention, the French government's right to recourse against space operators is limited to

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to the extent it has not already received financial guarantees or insurance operator in the amount of compensation.
If the damage was caused by a space object used as part of an authorized transaction under this Act, the recourse is exercised:
1. Within the limit of the amount fixed under the conditions mentioned in Article 16 in the event of damage during the launch phase;
2. Within the limit of the amount fixed under the conditions mentioned in Article 17 for damage caused after the launch phase, including at the return to Earth of the space object.
In case of intentional fault of the operator, the specified limits the 1 and 2 do not apply.
The state does not exert recourse for damage caused by a space object used as part of a transaction authorized under this Act and resulting 'acts against state interests.

[53] When an operator was ordered to compensate a third party because of damage caused by a space object used as part of a transaction authorized under this Act, and provided that the transaction in question was Driving from the territory of France or of another Member State of the European Union or party to the Agreement on the European Economic Area, or from facilities or installations under the jurisdiction of France or another Member State of the European Union or party to the Agreement on the European Economic Area, the operator shall, except in cases of willful misconduct, the State guarantee as provided by the finance law:
1. For the part of compensation exceeding the amount determined under the conditions mentioned in Article 16 in the event of damage during the launch phase
2. for the share of compensation exceeding the amount determined under the conditions mentioned in Article 17 in the event of damage to the soil or airspace after the launch phase, including at the return to earth of the space object.
In case of damage during the launch phase, State guarantee shall, where appropriate and in accordance with the preceding paragraphs, to people who do not have the status of third parties at a spatial operation, for the purposes of this Act.

60 million EURO. Article 20 of the FSOA allows scope for cross-waiver of claims for default to all contracts relating to space operation. Cross-waiver of claims refers to claims between persons participating in an authorized operation.[54] They include launch operators, manufacturers, contractors, sub-contractors, customers and insurers. But the cross waiver of claim will not apply if there is a manufacturing incident or a failure of the satellite (for damage caused in orbit) and damage caused in outer space.[55]

Finally, with respect to transfer of ownership or control of space objects in orbit, such transfer is permissible under the French Space Operation Act 2008 but only if it is authorized under this Act (Article 3). Apart from transfer, the takeover of a space object is also permissible though who's launching is not done under the authorization of this Act (Article 3). However this takeover must be in accordance with the authorization requirements described under the Act.

ANALYSIS AND CONCLUSION

To sum up, the above discussion on the space law of different countries is reflective of the fact that all the countries have followed a basic framework while drafting their national space law. These common and basic parameters can be listed as follows:

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[54] *Ibid*.

[55] Giugi Carminat, "French National Space Legislation: a Brief "Parcours" of a Long History," *Houston. Journal of International Law.* vol. 36, no.I (2014).

The various national space laws discussed here have the provisions for scope and jurisdiction. All the Acts cover the periphery of space for activities of state, individual and organization which will come under the scope of space law. Some countries like China, US and Russia have excluded military activities from the domain of domestic space law and only civil activities are brought under the purview of the space law legislations of China and Russia. Other countries such as Australia and UK space laws are mostly silent on this issue. In addition to this, most of the countries have made provisions for defining the jurisdiction of national space law and almost all countries have given extra-territorial jurisdiction to their space law.

Secondly with regard to the authorization and supervision principle which has its origins in the Outer Space Treaty 1967 (Article VI), almost all of the above discussed countries have incorporated the authorization and supervision principle for private commercial activities into their space law legislations. There are two important reasons behind incorporating these principles. The first is sovereignty and the second is the inherent risk associated with outer space exploration. According to international space law, the State is liable for any kind of outer space activities. And so if any private parties are carrying out any activities which are against the international law or national law, then by virtue of this principle, the State can take action against the private party. In other words, this principle acts as a 'check and balance' in the hand of the State. Since space exploration has always had an inherent and huge

amount of risk associated with it, there is an imperative need to work in tandem with the State so that parties can turn to the government in case of an emergency.

Third is the important point regarding licensing of outer space activities. This provision too is present in almost all space legislations. Licensing authorizes the individual or organizations to carry out space exploration from a particular country. A license also puts some conditions for the carrying out of space exploration by an individual or an organization. If any individual or organization contravenes those conditions, there is a provision for penalty as well as cancellation of licenses.

The fourth important principle is that of registration of space objects. According to the Registration Convention 1975, the registration of space objects is mandatory both at the international level as well as the national level. All the countries mentioned above have made provision for a national registry for registration of space objects.

Finally, the last important principle is that of liability and insurance. Again all country legislations have provided for liability for commercial activities. Though the primary liability for a kind of space related activity lies with the State yet the State has developed its own mechanism for distributing the liability among private actors involved. Except China, all other countries have provided for mandatory insurance coverage for carrying out commercial outer space activities. France, US and Australia have

placed an upper ceiling limit for the liability. In case of damage, the private party is required to pay up to a certain limit of the amount, post which, the State is liable for compensation. The UK follows the system of cross waiver and so in case of an accident the UK government will pay the compensation at the outset and will, at a later date, realizes the money from the party. However the US has created a common fund for compensation in case of damage. All individual and organizations interested in commercial space activities are required to contribute to the common fund if they intend carrying out space business from the US.

Apart from the above mentioned principles, in 2013, the UNGA had passed a resolution for drafting a national space legislation. The resolution number (A/68/423) also mentions the same principles for drafting a national space legislation to carry out commercial activities by country.

India stands at a juncture where it needs a robust and strong space law legislation. In order to safeguard its own interests and in the interest of economic benefit and for the betterment of the world at large, it is absolutely essential that India have a clear law in place. As mentioned above, the risk involved in space research operations is exorbitant and therefore the need for a legal system that spells out the expectations and consequences of an act, is the need of the hour. By studying, the legislations undertaken by other countries, we will get a fair picture of the larger points and principles that ought to be incorporated into space law legislation to make it

effective. It is clear that every country while having incorporated all the broad principles, has created a law that suits its own ethos. India also needs to adopt a legalistic approach to commercial space activity and must take immediate steps to begin drafting a comprehensive legal framework that will safeguard its own interest and benefit all commercial activities and stability to stakeholders.

SPACE ESPIONAGE: ITS LEGAL ASPECTS AND THE NEED FOR AN INTERNATIONAL REGULATORY REGIME

Sandeep Ravikumar[*]

Abstract

Remote sensing from outer space serves myriad purposes ranging from natural resource mining, and monitoring of deforestation and desertification, to application on an international level during times of war, natural calamities, and other man-made calamities such as nuclear disasters and plane crashes. Within the broad genus of remote sensing, there exists the terms 'reconnaissance' and 'espionage'. Though associated with more secretive and covert governmental actions, there exists a lengthy legal debate on the regime governing outer space reconnaissance activities. From the dawn of the space age, states have wasted no time in exploiting this new-found medium of intelligence gathering. With technology in this field developing at an exponential pace, the ramifications of space-based reconnaissance in the world's political and economic climate are immense. In this paper, these ramifications will be explored and analysed in light of the existing legal regime in the international and national levels. As is the case with many space-based activities, it will be shown that the development of this field in the practical sphere has far outpaced the scope of the existing legal regime, which exposes the need for greater international legislation and cooperation.

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LEGALITY: PENETRATIVE AND PERIPHERAL RECONNAISSANCE

Remote Sensing can be defined as 'the collection of information about an area from a distance, without any physical contact'.[1] In the context of outer space activity, it can refer to the various methods of satellite imaging, and includes transmission and reception of many forms of telecommunication data. The legality of space-based reconnaissance as a form of remote sensing has long been nuanced legal debate. Primarily, drawing a distinction between 'penetrative' and 'peripheral' data gathering assists in the assessment of its legality. This distinction was used to adjudge the legality of reconnaissance activities in air space in international law and scholars have used the principles to uphold the validity of space-based reconnaissance in international law.

Penetrative reconnaissance occurs when the territory of another country is entered into by the sensing state[2] for the purpose of gathering data about the sensed state or any other state. In this case, the legality of such activities will be adjudged according to the laws of the sensed state, and thus reconnaissance activity undertaken without permission of the sensed state will constitute a

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1 EC Barrett and LF Curtis, *Introduction To Environment Remote Sensing* (Chapman and HALL Ltd, 1976)

2 Bin Cheng, *Studies in International Space Law* (Oxford University Press, 1997) at 104

violation of their territorial sovereignty.[3] The infamous incident that served as the landmark in penetrative reconnaissance was the United States' unarmed 'U2' aircraft which flew into Soviet airspace attempting to photograph a military establishment, and was subsequently shot down by the Soviets. The world community, including the US, accepted the USSR's right to shoot down the aircraft, highlighting the definite, unquestionable sovereignty of a nation over its own airspace. Only a few months later, another aircraft, the 'United States RB-47' was shot down by the USSR outside Soviet airspace, in the high seas. This incident was an example of peripheral reconnaissance, wherein data is gathered about other states from *international* airspace. The subsequent, widespread condemnation of the USSR's actions lead to the reaffirmation of the legality of peripheral reconnaissance by United States, the United Kingdom and other nations, a stance never disputed by the USSR.[4]

These two incidents bring out the basic condition for the legality of reconnaissance activity. Data gathering from inside the territory of another state, without its permission is a prima facie violation of the state's sovereignty, where the same done from international spaces is deemed to be lawful. Applying this principle in the context of outer space activities, it is clear that the legality of space-based reconnaissance would be upheld. By virtue of Article

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3 Chia-Jui Cheng and P Mendes de Leon, "The Highways of Air and Space Law over Asia" in, *Studies in International Space Law, ed. Bin Cheng* (Oxford University Press, 1997), 579

4 Bin Cheng, *supra*, note 3, p. 118

II of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies [Outer Space Treaty], outer space, including the moon and other celestial bodies are subject to the principle of national non-appropriation, rendering outer space as international territory, thereby making it subject to general international law.[5] The peripheral-penetrative distinction makes it clear that reconnaissance activities from international territories, of which outer space is a part, is a legal activity.

The approach adopted is a spatialist one, rather than a functionalist approach, as the location of the act and not the nature of the act determines legality. It can be argued that such a regime does not achieve the end that may be desired by many countries. The main objection to reconnaissance activity is not the potential violation of territorial airspace, but the invasion on the sensed state's privacy. Adopting a functionalist approach may seem more prudent in order to protect each state's privacy as reconnaissance could be classified as legal or illegal based on the nature of penetration or data gathering conducted by the sensing state by the satellite in question. However, in the modern day and age, it has become increasingly difficult to distinguish between satellites in terms of their function as a single satellite may have multiple capabilities.[6] For example, the line between the meteorological and military

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5 *Ibid*; p. 581

6 B. Jasani and C Larsson, 'Security Implications of Remote Sensing', *Space Policy* (Feb 1998) at 46

surveillance components of the same satellite is almost indiscernible, hence enforceability of a spatialist approach is perhaps more practical than a functionalist one, given the advancement of modern technology.

In this context, the need for a clear demarcation between air space and outer space is brought out. Given that the major premise for adjudging the legality of space-based reconnaissance is the physical presence of the satellite in outer space, the position of a satellite would determine whether it is engaged in lawful peripheral reconnaissance, or unlawful penetrative reconnaissance. While there is yet no internationally accepted practice, the opinion juris of states would suggest that outer space begins at the height where satellites are able to complete one full orbit around the earth. Some scholars believe that the minimum height required is 160 kilometres, with a velocity of 28,000 km/h, in order for a space object to maintain its orbit and not be subject to orbital decay and altitude loss.[7] Many other scholars, however, have stretched this figure down to 100 to 110 kilometres above the Earth's surface.[8] As no consensus has been reached on an international level, there is still nothing in black-letter law to prevent a nation from claiming illegal violation of its sovereignty by a space-based satellite. However, conduct of states over the years has led to an implied

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7 Roger Cliff, Chad J.R Ohlandt and David Yang, Ready for Takeoff: *China's advancing aerospace industry* (Rand Corportation, 2011), 91

8 Bin Cheng, "The Legal Regime of Airspace and Outer Space: The Boundary Problem- Functionalism vs Spatialism: The Major Premises" *Annals of Air and Space Law*, vol. 5 (1980): 323

acceptance of the use of reconnaissance satellites[9], specifically so in the fields of arms control and preservation of international peace[10].

INTERNATIONAL LEGISLATION ON REMOTE SENSING AND ESPIONAGE

While the major space treaties do not expressly mention or allow remote sensing, the legality of the activity has been read in to the provisions of the Outer Space Treaty. It has already been established that by virtue of Article II of the Outer Space Treaty, a satellite orbiting in outer space, would not be considered as a violation of any state's sovereignty. With specific regard to remote sensing activities, it has been argued that such activity would not amount to "exploration and use" mentioned under Article I and III of the Outer Space Treaty.[11] This argument is based on the premise that the object of exploration and use must be outer space itself. However, this can be refuted as such an interpretation would not only bar remote sensing, but also any other space activity directed towards earth. This includes meteorology and telecommunications, which are two of the primary benefits that states have obtained from the dawn of the space age. The combination of the two words

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9 *supra* note 2, p. 586

10 A tacit recognition of its lawfulness was brought out in Limitation of Anti-Ballistic Missile Systems (ABM Treaty between US and USSR) where Article XII stated that the parties shall use 'national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law' in order to ensure that either party was complying with the treaty provisions.

11 Karl-Heinz Bockstiegel, *Reconsideration of the Legal Framework for Commercial Space Activities* (ECSL Summer Course, 1994), 179.

'exploration' and 'use' together provide for the use of outer space *in* and *from* space. This expansive interpretation would be in consonance with the drafters' intent expressed during the negotiation stage of the Treaty.[12] While employment of just the word 'exploration' could have been used to exclude the practice of remote sensing, the word 'use' must be interpreted to act as an expansion to restrictive scope of 'exploration'.[13]

The UN Principles Relating to the Remote Sensing of Earth from Outer Space, 1986 [Principles on Remote Sensing] defines the 'remote sensing' as the sensing of the Earth's surface 'for the purpose of improving natural resources management, land use and the protection of the environment'. This is by no means as exhaustive definition given the fact that well before the passing of this General Assembly Resolution in 1986, many states were engaged in reconnaissance and other space-based activities that fell outside the scope of the activities mentioned within the Resolution.[14] This definition cannot be construed to mean that reconnaissance and data gathering via satellites was prohibited by virtue of this Resolution.

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[12] Michel Bourbonnière, *Commercialisation of Remote Sensing U.S. and International law : towards a liberalization of economic regulations* (McGill University, 1996), 32.

[13] H.L. van Traa-Engelman, *Commercial Utilization of Outer Space Law and Practice* (Dordrecht: MartinusNijhoff Publishers, 1993), 20

[14] Deepaloke Chatterjee and Soummo Biswas, "Remote Sensing, Espionage and International Law," in, *Outer Space Law: from Theory to Practice, ed. Dr. Sandeepa Bhat B.* (IFCAI University Press, 2009), 156.

Additionally, another possible restriction on data gathering and dissemination has been read into Principle IV of the Remote Sensing Principles which states that remote sensing activity must be conducted for 'the benefit and interest of all countries' and not in a manner detrimental to the 'legitimate rights and interests' of the sensed state. This very vague safeguard on the interests of the sensed state is subject to auto-interpretation[15] by the major space-faring nations.[16] As no clear scope of 'legitimate rights and interests' can be deduced from the Principles, interpretation of this principle would ultimately be governed by the conduct of the more powerful states on the international arena. Invocation of Principle IV by the sensed state to allege violation of international law by the sensing state loses teeth due to the inherent ambiguity of the text.

COMMERCIALIZATION AND REGULATION OF PRIVATE REMOTE SENSING ACTIVITIES

The entry of private players into the field of remote sensing changed the dynamics of the field in many ways. At the time when the Outer Space Treaty was enacted, the number of space-faring

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[15] As given in Marco Benatar, *From the Probative Value to Authentic information: The legal effects of Interpretive Declarations*, REVUE BELGE DE DROIT INTERNATIONAL2011/1-2 'auto-interpretation' refers to : "*It is common to all systems of law that their subjects get the first opportunity to interpret the norms that regulate their behaviour. This is a matter of necessity, as they can only internalize and thus comply with laws once they understand the full extent of their legal duties.(15) This process,through which norm-addressees interpret the rules that bind them, is often labelled auto-interpretation. The same can be observed at the international level."*

[16] *supra* note 3, p. 596

nations was minimal and the existence of commercial entities in the field of space technology was not even contemplated. Thus, the applicability of the Outer Space Treaty to the commercial sphere has had to evolve along with the development of the private sector.

It has been argued by some, that Article I of the Outer Space Treaty prohibits commercial use.[17] However, this interpretation would presuppose a contradiction between the 'benefit and interest of all countries' and commercial activity.[18] Further, it is a basic principle of treaty interpretation that a prohibition has to be based on a clear treaty obligation[19], which cannot be found in the present case. Though there exists nothing in the Outer Space Treaty to expressly allow private activity, scholars has opined that the Treaty does accommodate their involvement.[20] Article VI of the Outer Space Treaty[21] unambiguously provides that the State party to the Treaty shall bear international responsibility for all national space activities, whether conducted by governmental or non-governmental entities. This Article clearly contemplates the involvement of private actors but links them directly to the

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17 *supra* note 13, p. 30

18 *Ibid*

19 *See Steamship Lotus case (France v. Turkey) (1927), P.C.LI. Sere A., No 10*

20 *supra* note 14, p. 23

21 Article VI states that: "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 authorization and continuing supervision by the appropriate State Party to the Treaty…"

activities of the State party to the Treaty. This absolute responsibility vested on the State has direct implication on the nature of national legislation and regulation enacted by the individual states with respect to private entities. In the interplay between the state and private entities within the state's jurisdiction, two issues will be at the forefront of this discussion: (1) protection of the national interest and sovereignty of states and (2) promotion of competitiveness and development of technology in the private marketplace.

NATIONAL LEGISLATIONS ON REMOTE SENSING AND DATA DISSEMINATION

United States

Commercial development in the field of remote sensing began with the Land Remote Sensing Commercialization Act, 1984 (Landsat Act) under the Reagan Administration. The Statement of Purposes in the Act included the desire to "maintain the United States worldwide leadership in civil remote sensing"[22], suggesting that the motivation behind this Act was the entry of competitive French and Soviet players in the remote sensing market. In spite of this commercial motive in mind, the priority of the government remained protection of US national security interest, and as a result, the licensing policy for private entities had safeguards incorporated that gave the US Department of Defence the mandate

[22] Land Remote Sensing Commercialization Act of 1984 §102(2), Pub.L . No. 98-365, 98 Stat. 451

of ensuring the safety of operations of private satellites. No license could be issued without certification by the Department of Defence that the prospective licensee's activities were in conformity with national security interests and did not jeopardise foreign relations.[23]

The first flaw with this policy was that it failed to define what 'national security' entailed.[24] Further, with this discretion being granted solely to the executive, the problem created by ambiguity in definition was compounded by the fact that changes in administration led to even greater uncertainty as to what constitutes 'foreign policy'. As is the case with any industry plagued with excessive and uncertain governmental control, potential investors were deterred from entering the market.[25] Especially in the space industry, where capital investment is extremely high, the risk of instability was perhaps too high to justify the investment. The US administration did attempt to address these concerns in the Land Remote Sending Policy Act of 1992, but retained the power to compel licensees to curtail or block out specific data at specific times and further, made it mandatory that the government must be notified each time the licensee wishes

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[23] Susan Jackson, "Cultural Lag and the International Law of Remote Sensing", *Brooklyn Journal of International Law*, vol. 23, (1998): 862.

[24] George Seay, "Remote Sensing: The Media, the Military and the National Security Establishment- A First Amendment Time Bomb", *Journal of Air Law and Commerce*, vol. 59, (1994): 247.

[25] *supra* note 24, p. 863

to contract with a foreign organization.[26] A practical illustration of the defects still existing in this system presented itself during the course of the EYEGLASS project, formed out of a consortium of American and Saudi Arabian firms. Israel strongly objected to the dissemination of information about its own territory, specifically to the Saudis and other Middle Eastern powers, and pressurized the US into imposing strict regulation on the use of the EYEGLASS satellite.[27]

Such regulation would achieve its purpose if the practical result was the non-availability of sensitive images of US or Israeli territory, as the case may be. However, the market for satellite imagery was already trans-national, particularly with the entry of the more commercially competitive French SPOT satellite and the Russian *Soyuzkarta*[28]. In the modern day, private and public entities from numerous countries, including India, China and Japan, compete in the market for satellite data. Any restriction that the US may impose on its own private entities can by bypassed by merely procuring the same images from a French or Chinese seller, thereby defeating the purpose of the US restriction.[29] Apart from

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[26] Land Remote Sensing Policy Act of 1992, Pub. L. No. 102-555, 106 Stat 4166 (codified at 15 U.S.C.A. §§ 5651-5672

[27] *supra* note 24, p. 867

[28] Tim Brown, 'National Peach Through the Free Market: The Effect of Commercial Remote Sensing Satellites on International Peace' *in* Int'l Inst of Space L., Int'l Astronautical Fed'n,Proceedings of the Thirty-Seventh Colloquium on the Law of Outer Space, 1994, at 201

[29] Hugh De Santis, "Commercial Observation Satellites and their Military Implications: A Speculative Assessment," *Washington Quarterly*, vol. 12, Summer (1989): 185

the fact that US national security is compromised, such regulation also puts the US private entities at a competitive disadvantage on the commercial satellite market, as foreign competitors are able to provide wider service, thus neither of the two main concerns in the commercialization of remote sensing are addressed.[30]

India

The consequences of a regime similar to United States' will be exposed in any country that seeks to regulate its domestic private entities in their own national interest. India, for example, regulates sale and use of remote sensing data via the Remote Sensing Data Policy (RSDP), 2001. While India does not currently allow the establishment of commercial remote sensing satellite systems, domestic buyers can purchase data from the IRS range of satellites from the National Remote Sensing Agency (NRSA).[31] The data made available is however, made subject to Section 4 of the RSDP which blocks out area considered to be 'sensitive'.

This restriction can easily be subverted as foreign satellite data is readily accessible on the internet or other telecommunication channels. Efforts have been undertaken to extend the reach of the RSDP restrictions as was done with Space Imaging Inc., where

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30 *supra* note 29, p. 201

31 R. Kaul and Ram S. Jhaku, "Regulation of Space Activities in India," in, *National Regulation of Space Activities, ed. Ram s Jhaku* (Dordrecht: Springer, 2010), 182

foreign private entities agree to blur out Indian military establishments before sale of their images to Indian customers.[32]

However, in the information age we currently live in, restricting information dissemination is a near impossibility. The inconvenience of procuring images from the NRSA is easily substituted by the myriad free of cost, high resolution satellite imagery available to the average internet user in the form of Google Maps, Bing Maps, Yahoo! Maps, among others. These private satellite imagery services not only wipe out demand for state-sponsored services but also provide unrestricted access to high resolution images including sensitive establishments such as airfields and defence headquarters.[33]

In attempting to find a balance between the potentially counter-acting interests, that is, national security, and promotion of private involvement and access, it can be seen that states have failed to devise a regime that provides adequate safeguards to both issues. Any attempt at protecting national interest results in adverse effect on the latter and any attempt at deregulation, made in commercial interest, leads to a compromise on the former.

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[32] K.S. Jayaraman, "India, U.S. Firm Agree to sale of 1-meter Imagery," *Space News*, 17 July 2000, 1.

[33] Brian Craig, "Online Satellite and Aerial Images: Issues and Analysis," *North Dakota Law Review*, vol. 83 (2007): 548.

ADVANTAGES OF DATA DISSEMINATION AND PRIVATE INVOLVEMENT

Despite the flaws in the present legal and regulatory regime, it can be established that promotion of commercial involvement and increased data dissemination is in the interests of the international community at large. By tracking the evolution of space reconnaissance technology over the past few decades, it is evident that the benefits of increased competition and private involvement have led to rapid and exponential technological development in the field. As mentioned previously, one of the main purposes behind the enactment of the LANDSAT Act by the Reagan Administration in the US was the urge to revive the declining market share of the US in the civil remote sensing field, by tapping the "superior efficiency and training of the marketplace".[34] The precursor to the American LANDSAT 1 satellite boasted of a resolution of 80 metres in 1972[35] and by the mid-1980s the resolution was brought down to 30 metres[36]. However, the with the entry of the French SPOT satellite, the lowest resolution available on the market was brought down to 10 metres[37] and a few years later, the figure was brought down to 5 metres by the Russian

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[34] Christopher Joyner and Douglas Miller, 'Selling Satellites: The Commericialisation of LANDSAT', Harvard International Law Journal, vol. 26 (); 69, (26 HARV INT'L L.J. 63, 69)

[35] This method of measuring resolution refers to the portion of the Earth's surface that fits into one pixel of the image. For example, in a 50 metre resolution image, the area contained within one pixel would be approximately 50m x 50m.

[36] *supra* note 25,p. 244

[37] *Ibid*

Soyuzkarta venture[38]. Today, the hegemony of the superpowers was weakened considerably with the entry of public-private partnerships from Japan, India, China and Brazil among others into the remote-sensing hardware industry.[39]After few decades of vast technological development in the private sphere, the modern day GeoEye-1 is capable of producing images of 0.41 metres in resolution[40]. Thus, it is evident that private participation has allowed space technology to develop at a much faster pace than would have been possible in a purely state-owned regime. From the grainy monochrome haze produced by reconnaissance satellites in the 1980s, private involvement has allowed satellites even precisely identify number plates on a car from several hundred kilometres above the Earth's surface.

THE NEED FOR AN INTERNATIONAL REGULATORY REGIME

The benefits of private investment are undoubtably large, and their involvement in the field is bound to bring further development in this field. However, as discussed above, there exists a disjunct between the national regimes and the international regime governing remote sensing, which has led to consistent threats to national security for all countries. In light of the clear loopholes in

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[38] *supra* note 24, p. 864

[39] Ladson Hayes and A.P Cracknell, '*Introduction to Remote Sensing'* (CRC Press, 2007)

[40] US government signs off on sale of ultra-high resolution satellite imagery, June 14, 2014 (Accessed August 20, 2014) www.theverge.com/2014/6/14/5809628/us-government-signs-off-on-sale-of-ultra-high-resolution-satellite-imagery

the existing regime, a possible solution to address national security concerns and concerns regarding misuse of information in the wrong hands would be to establish an international regulatory regime. Such a regime would involve the coming together of all affected nations in the interest of establishing international guidelines as to what information can and cannot be made publicly available. It is evident that the restrictions imposed by governments relate first and foremost to sensitive imagery of military establishments. However, as many national legislations can be subverted by procuring images from another country, the threats to these military establishments are not completely mitigated. Both ex-ISRO Chairman Madhavan Nair and former Indian President APJ Abdul Kalam have advocated for restrictions on Google Earth's free imaging service, perceiving threats to national security as terrorists could use the service to pinpoint potential targets.[41] World events show that their fears were not unfounded. Gazan militants have used Google Earth to target sensitive Israeli establishments[42], insurgents have used the service to find the most vulnerable British and American military bases in Iraq[43] and terrorist have admitted to using the software to plan the

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[41] Indian concerned by Google Earth, October 15, 2005 (accessed August 20, 2015). http://www.aljazeera.com/archive/2005/10/200841012262771845 8.html

[42] Report: Gaza Terrorists use Google Earth to pinpoint targets, September 7, 2011, (access August 21, 2015). http://www.israelnationalnews.com/News/News.aspx/145551

[43] Terrorists use Google map to hit UK troops, January 13, 2007 (access August 21, 2015). http://www.telegraph.co.uk/news/worldnews/1539401/Terrorists-use-Google-maps-to-hit-UK-troops.html

Mumbai terror attacks of 2008, highlighting just a few of many instances where access to high definition satellite imagery has caused more harm than good.

While Google Earth has responded to some requests by blurring out, camouflaging or morphing images of sensitive Indian military and nuclear establishments[44], it remains as only one of many imaging services accessible via the internet worldwide. In order for such regulation to be fully effective, there would need to be a centralized, common forum wherein all national governments (who remain internationally responsible for private space activities) come together and agree to regulate all remote sensing imaging services in a *uniform* manner. Such a regulatory network or agency would address the national security issues of all countries while ensuring that no private entity loses out on its competitive edge in the international marketplace due to its national legislations.[45]

Admittedly, it is unlikely that there will be international consensus on each and every demand imposed by each State. However, this collaborative regime can work towards establishing a basic, bare-minimum level of censorship[46] on the general public's access to

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[44] Google Earth agrees to blur pix of key Indian sites, February 4, 2007, (accessed August 22, 2015). http://timesofindia.indiatimes.com/india/Google-Earth-agrees-to-blur-pix-of-key-Indian-sites/articleshow/1559236.cms

[45] As was the case in the LANDSAT program discussed above.

[46] Such censorship need not necessarily be complete blacking out of certain areas of land. Intelligence experts employ other methods such as distorting images, adding buildings where none actually exist, decreasing image resolution, or providing out dated images as complete blackout would only attract attention to these locations. See

images of nuclear establishments, military bases and high-security government buildings such as residences of Heads of State among others. From the terrorism angle, such a regime would lead to a far more effective blockade on access to information than any unilateral action undertaken by one or two service providers.

This proposed regime would be with respect to the general, public dissemination of satellite imagery, and would not govern governments' access to such images. It would be far-fetched to suggest that States would agree to place restrictions upon access to its own imagery of other states, especially keeping in mind the legality of reconnaissance in international law. Given today's high advancement in military capability in an era of international conflict, it has been shown that data denial or restrictions in fact leads to greater conflict and degradation of international relations.[47] For example, remote sensing data has aided greatly in treaty verification and in monitoring arms transfers. Specifically in relation to the Treaty on the Non-Proliferation of Nuclear Weapons, advanced remote sensing satellites are able to monitor nuclear activity[48], and the existence of advanced verification methods likely as a deterrent for any State attempting to engage in proliferation.

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http://www.theinquirer.net/inquirer/news/1013050/google-censors-indian-sites

[47] Joanne Gabrynowicz, "Bringing Space Policy into the Information Age, Space Policy," *Space Policy*, vol. 8, no. 2 (1992): 167.

[48] *supra*, note 24 at 867

A case for greater regulation can also be made out from the right to privacy angle. While there exists nothing in international law comparable to the right of privacy found in national laws, consensus could develop to allow claims that a state and its citizens has the right to be left alone.[49] Furthermore, the privacy argument can also be raised against states which guarantee their own citizens the right to privacy in relation to aerial imaging. If such a state were to claim uninhibited right to conduct reconnaissance of citizens of other states from outer space, the sensed state objecting to this activity to could use the apparent self-contradiction on the part of the sensing state, to leverage support from the international community for imposing restrictions on such reconnaissance activity.

CONCLUSION

Analysis of the existing network of legislations on space reconnaissance exposes multiple grounds on which the regime falls short, and it becomes imperative that the international community addresses the gaping loopholes in the existing regime. The need of the hour is a strong, clear international treaty that is more suited to the circumstances of modern times. With the exponential advancement of technology and the inevitable, and perhaps necessary, involvement of private entities, it is evident that the Outer Space Treaty of 1968 and UN Principles on Remote Sensing of 1986 are both inadequate in addressing the complications in the

[49] *Supra* note 15, p. 148

field of space reconnaissance. While the laws to reflect a desire to achieve harmony, the generality of the Outer Space Treaty and the non-binding nature of the Principles on Remote Sensing has resulted in the creation of a big void in a field where technological development has long outpaced the international legal regulations. Any new international regime must specifically address the issue of private entities in the field as this aspect is relatively untouched in the existing set of laws. Issues of free market and competition and regulation of sensitive data are left to domestic legislations alone and the lack of coordination between national and international laws has led to a situation where domestic legislations govern an international marketplace, creating a dysfunctional system.

I TOO HAVE A ROAD TO OUTER SPACE BUT DO I NEED A LAW? THE NECESSITY FOR NATIONAL SPACE LEGISLATION

Kumar Abhijeet[*]

Abstract

There has been a paradigm shift in space activities moving out from the Government realm to complete private hands. The shift is inevitable because Governments can no more afford to rocket tax payer's money into outer space and also cannot hold space exploration. Today space has become integral part of common man's life. Communication, navigation, broadcasting, satellite imaging are the direct usage of space technology. Possibility of mineral exploration and transfer of solar energy, space tourism are in near distant future. Though the private entities are an emerging alternative to Government limitations but it essential that all such private activities operate under the 'rule of law'. Many nations have developed space technology but not necessarily they have a law to regulate their space activity. The Outer Space Treaty imposes an international responsibility upon the states to assure that all their national activities whether governmental or non-governmental are in compliance with international obligation. With regard to non-governmental activities States have an obligation to 'continuously authorize and supervise' their activities. Authorization and supervision being a procedural aspect creates the primary basis for enacting national space legislation. Failure to authorize and supervise may make the State internationally

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liable because unlike other branches of international law, international space law imposes 'public liability for private activities'. This paper explores the genesis of space law, defines the boundaries of space activity and advocates for the necessity of national space legislation.

INTRODUCTION

The exploration and us of outer space has transformed human life beyond imagination. Every second country in the world is aspiring today for space technology. The space race which began merely with motivation of manifestation of power and prestige has metamorphosed into necessity today. Space happens to be econmic viable natural resource making it commercially vulnerable. With advancement in technology, increasing commercialization of space, how sustainable is this 'gateway for mankind's future'?

Similar thoughts occurred to Dr. Paniker – An Indian Malyalam[1] poet when Yuri Gagarin made his journey to outer space. Dr. Paniker in his poem 'Hey Gagarin' expresses his exasperation on human's presence in outer space. He address Gagrin as "devourer of space" The Cosmos which was known to the world only by way of poets imagination is no more to be seen so and urges his "fellow poets that stare in stupor" to keep their spirit ablaze and "grow new wings to catch with science across the recesses of outer space."

In the initial years of space age states were the sole participants, but today there is an increasing number of private participants especially in the field of satellite communication, remote sensing

[1] Vernacular language for the State of Kerala in India.

and space transportation. Since private participation is likely to increase in future it is necessary that activities of private entities do not further devour the outer space and is in consonance with international space law. The increasing number of private space activities generates new challenges for space law and for the state under whose jurisdiction these players excel. With the number of private space activities increasing, national space legislation will be a preventive measure promoting sustainable private space activities.

Though many states have laid the road to outer space but not many have adopted their national space legislation. This paper establishes the basis for national space legislation which any space faring nation must have. The first part of the paper elaborates the historical development of space activities which led to the development of space law. All space activities are supposed to be within the boundaries of the general principles of space law. The second part reflects upon the general principles of space law which have now become customary in nature. The increasing private player in space demands for their regulation. The third part establishes the basis for national space legislation which shall be a beacon for space activities.

FROM SPACE RACE TO SPACE LAW

Unlike today where the space endeavors are planned activities driven with the motive of scientific or commercial use, space activities in the initial years remarked with the launch of Sputnik 1

in 1957, were carried out in search of dominance and political prestige on Earth.[2] Space activities were confined to the domain of the then superpowers United States and Russia. Both the nations were in race to each other with regard to conquest of space. Dr. Edythe E. Weeks[3] has classified the outer space development regime into three epochs – the first epoch (1957 – 1979), the second epoch (1980 – 1991) and the third epoch (1992 onwards).

Shortly after the launch of *Sputnik* into outer space which marked the beginning of space race the world community began to address possible principles, requirements, and contemplated prohibitions as law[4]. The nations urged the United Nations to create laws to govern outer space. In 1958, an Adhoc Committee on the Peaceful Uses of Outer Space (COPUOS) was created by the UN General Assembly[5], in order to consider[6]:

- the activities and resources of the United Nations, the specialized agencies and other international bodies relating to the peaceful uses of outer space;

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2 M. Couston & L. Pilandon. (1991). L' Europe. Puissance Spatialae 2 Bruyllant.

3 Weeks, Edythe E. (2012). Outer Space Development, International Relations and Space Law: A Method for Elucidating Seeds Cambridge Schilards Publishing.

4 Doyle, Stephen E. (2011). A Concise History of Space Law: 1910-2009. In Mark J. Sundahl and V. Gopalkrishnan (Eds.) New perspectives on Space Law, Proceedings of the 53rd IISL Colloquium on the Law of Outer Space (Pp. 1-24). International Institute of Space Law.

5 1959 UNGA resolution 1348 (XIII).

6 See United Nations Committee on the Peaceful Uses of Outer Space: History and Overview of Activities available at http://www.unoosa.org/oosa/en/COPUOS/cop_overview.html

- international cooperation and programmes in the field that could appropriately be undertaken under United Nations auspices;
- organizational arrangements to facilitate international cooperation in the field within the framework of the United Nations; and
- legal problems which might arise in programmes to explore outer space.

A year later the adhoc committee was granted the status of permanent body by the UNGA resolution.[7] COPUOS was divided into two Sub-committees – Legal Sub-Committee and Scientific Sub- Committee. The Legal Sub-committee was studying and reporting on the legal problems which might arise from the exploration and use of outer space. COPUOS was a unique organ of UN where decisions where taken by consensus and through this procedure nearly after ten years of negotiations the international community witnessed five space treaties. The first and the foremost being the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other celestial Bodies popularly named as the Outer Space Treaty[8]. The Outer Space Treaty is the *Magna Carta* prescribing the basic rules for exploration of Outer Space. Elaborating on the specific provisions of Outer Space Treaty the

[7] UNGA resolution 1472 (XIV).
[8] UNGA resolution 2222(XXI), adopted on 19 December 1966.

UNCPUOS came with four more treaty *viz.* 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Rescue Agreement),[9] 1972 Convention on International Liability for Damage Caused by Space Objects (Liability Convention),[10] the 1975 Convention on Registration of Objects Launched into Outer Space (Registration Convention)[11] and the 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Treaty).[12] In the first two decades of work the United Nations achieved a fairly general framework for the activities in outer space[13].

During the first epoch, space activities were purely governmental in nature and private entities were not relevant actors. But the second epoch was marked with the increase in space commercialization and participation by private entities which were triggered by US domestic law making and policies. Space became perceived as a new market place, wherein joint co-operation between business entities and governments to pool resources and cut costs pattern was common[14]. During this period, private-sector was consistently encouraged to participate in space through various government incentives and domestic legislation.[15] Emerging space

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9 UNGA resolution 2345(XXII), adopted on 19 December 1967.
10 UNGA resolution 2777(XXVI), adopted on 29 November 1971.
11 UNGA resolution 3235(XXIX), adopted on 12 November 1974.
12 UNGA resolution 34/68, adopted on 5 December 1979.
13 Fabio Tronchetti, Fundamentals of Space Law and Policy, 2013 Springer p.18.
14 Supra n. 3
15 Obermann, Richard M., and Ray A. Williamson. (1998). Space Policy 14, 17-25; Brooks, Timothy A. (1991). Comment: Regulating International

industries were governed by domestic legislation. Due to the consensus method of treaty making, the United Nations international lawmaking machinery had become cumbersome. It had proven to be too unpredictable to keep pace with the rapid development of commercial applications of space technologies[16]. The space lawmaking shifted from the international arena to the domestic arena associated with individual nations and their commercial interests. The US established a trend towards commercialization and increased participation of private sector. With passage of time more countries became interested in space activities and accordingly the members of COPUOS increased. Obtaining consensus on the contents of treaties became substantially difficult and the UN concentrated on adopting soft laws. After 1980 the COPUOS adopted four additional General Assembly Resolution containing declarations of principles: - Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting;[17] Principles Relating to Remote Sensing of the Earth from Outer Space;[18] Principles Relevant to the Use of Nuclear Power Sources in Outer space[19]; Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the

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Trade in Launch Services. High Technology Law Journal 59; Finch, Edward Ridley, Jr., and Amanda Lee Moore. (1985). Astrobusiness: A Guide to the Commerce and Law of Outer Space. Praeger New York.

16 Goldman, Nathan C. (1996). American Space Law: International and Domestic. 2nd ed. San Diego, California: Univelt.

17 UNGA resolution 37/92, adopted on 10 December 1982.

18 UNGA resolution 41/65 adopted on 3 December 1986.

19 UNGA resolution 47/68 adopted on 14 December 1992.

Interest of All States, taking particular account of the Needs of Developing Countries[20].

In the past decade the Legal Sub-Committee of UNCOPUOS has been proactive reviewing the international space law and suggesting possible way forwards[21]. At its initiative the UN General Assembly has adopted three more resolutions - Resolution on the Application of the Concept of the Launching State[22], the Resolution on Recommendations on Enhancing the Practice of States and International Intergovernmental Organizations in Registering Space Objects[23] and the Resolution on Recommendations on National Space Legislation Relevant to the Peaceful Exploration and Use of Outer Space[24].

The third – current – epoch involves new actors, new debates, new policies and new industries such as space tourism, space settlement and space mining[25]. Globalization and the dominance of free-market ideology resulted in increased privatization of space industries. A myriad of new space laws and policies have been created by respective space faring nations in rapid succession for the encouragement of private-sector participation. In the past decade, norms have been developed through a variety of

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[20] UNGA resolution 51/122 adopted on 13 December 1996.
[21] Hobe, Stephan. Space Law – An Analysis of its Development and its Future. In C. Brunner, A. Soucek (eds.) Outer Space in Society, Politics and Law, Springer Press. (2011). Pp. 476-490.
[22] UNGA resolution 59/115 adopted on 10 December 2004.
[23] UNGA resolution 62/101 adopted on 17 December 2007.
[24] UNGA resolution 68/74 adopted on 11 December 2013.
[25] Supra n.3.

participants and taking place outside of the traditional UNCOPUOS like the Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Space Assets[26]. Inter Agency Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines 2002 'significantly benefitted'[27] the 2007 UNCOPUOS Space Debris Mitigation Guidelines[28].

THE GENERAL PRINCIPLES OF SPACE LAW

The Outer Space Treaty was a land-mark towards the establishment of a legal regime of outer space. The treaty laid down the general principles relating to the activities on outer space, celestial bodies and the Moon. The current section reflects upon the fundamental principles of space law.

Freedom of Exploration of Outer Space[29]

Hobe (2009) has expressed that 'freedom' of exploration and use of outer space means that any entity that benefits from the freedom does not need to ask for permission from other governments, but can either explore – that is to find out whether any use is possible – or use outer space. However Article 1 of OST also has an inherent limitation that the 'exploration and use shall be for the benefit and

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[26] The Protocol was adopted on March 9, 2012 by the International Institute for the Unification of Private Law (UNIDROIT)

[27] See Soucek, A. Negotiation and Drafting History, the 2007 Space Debris Mitigation Guidelines of the Committee on the peaceful Uses of Outer Space. (2015). In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 3. (Pp. 616.) Carl Heymanns Verlag.

[28] UNGA resolution 62/217 adopted on 22 December 2007.

[29] Article 1 OST.

in the interest of all countries' and that the outer space shall be 'province of mankind'. It is an enabling provision for the non-space faring members of the international community to benefit from the results of space activities[30]. The interest of all mankind is to be taken into consideration and not just the interest of specific countries. Thus Article I impedes any State monopolization of space activities, but to ensure that the exploration and use of outer space remains a community effort so that all mankind can profit from those activities[31].

Non-Appropriation Principle[32]

While outer space is free for exploration and use for all the States, but no activities of State or non-State entities or natural persons will ever give rise to a legitimate claim to ownership rights[33]. "Outer Space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means"[34]. The use of the word 'any other means' at the end of Article II, leaves no room for any form or shape of appropriation by whatsoever means[35]. The prohibition of appropriation is not only a foundational legal

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30 Hobe, Stephen. (2009). Article I. In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 1. (Pp. 25-43.) Carl Heymanns Verlag.

31 Ibid.

32 Article II OST.

33 Freeland, Steven and Jakhu, Ram. Article II. (2009). In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 1. (Pp. 44-63). Carl Heymanns Verlag.

34 Article II OST.

35 Supra n. 24.

principle of conventional space law but has also acquired the status of customary international law[36].

Peaceful Use of Outer Space[37]

Yet another limitation is imposed on the freedom of exploration and use of outer space, Article IV of OST limits this freedom with regard to certain military use of outer space. It prohibits the placement of weapons of mass destruction (WMD) in Earth orbit and use Moon and other celestial bodies exclusively for the peaceful purposes. Since the term 'peaceful use' has not been defined, its interpretation has given rise to much debate. The question of whether 'peaceful' refers to 'non-military' uses, prohibiting complete military use altogether and thus leading to a complete demilitarization of the Moon and other celestial bodies; or rather to 'non-aggressive' uses with the result of a neutralization, prohibiting aggressive but leaving room for non-aggressive uses[38]. Expressly establishment of military bases, testing of any types of weapons and the conduct of military maneuvers on celestial body is prohibited.

Astronauts as envoys of mankind[39]

Article V OST carries a humanitarian element of the effective protection of people involved in the exploration of outer space on

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36 Ibid.
37 Article IV OST.
38 Schrogl, Kai-Uwe and Neumann, Julia. (2009). Article IV. In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 1. (Carl Heymanns Verlag). Pp. 70-102
39 Article V OST.

behalf of all mankind[40]. All astronauts are to be treated as "envoys of mankind in outer space." States are under an obligation to render all possible assistance in the event of accident, distress, or emergency landing to the astronauts of other States. The 1968 Rescue Agreement further elaborates this responsibility entailing global responsibility to support space activities of space faring nations[41].

The greater challenge to Article V will arise from the increasing private involvement in space activities of a manned character[42].

International Responsibility for National Activities[43]

All private space activities or governmental activities are deemed to be national activities. It is the duty of respective state to assure that all national activities are in accordance with the provisions of this treaty for which State bear international responsibility. A space activity may be private but responsibility is public[44].

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40 Cheng, Ben. (1997). The Legal Status of Astronauts. International Space Law Clarendon press, Oxford.

41 Jakhu, Ram. (2005). Legal Issues Relating to the Global Public Interest in Outer Space. Journal of Space Law 31 – 110.

42 Von der Dunk, F. G. and Goh, Gerardine Meishan. (2009). Article V. In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 1. (Pp. 94 -102). Carl Heymanns Verlag.

43 Article VI OST.

44 Von der Dunk, F.G. 2011. "The Origins of Authorization: Article VI of the Outer Space Treaty and International Space Law" in F.G. von der Dunk (ed.), National Space Legislation in Europe: Issues of Authorization of Private Space Activities in the Light of Developments in European Space Cooperation. (Pp 3-28). Martinus Nijhoff Publishers.

Liability for damage caused by space objects[45]

Article VII OST imposes an obligation upon launching states[46] to be international liable for damage caused to another State or to its natural or juridical persons caused by a space object or its component parts. This principle has been further elaborated in the 1972 Liability Convention which establishes a twofold liability regime. A launching State is absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight[47]. Whereas damage caused in outer space is determined on fault basis[48]. The rationale for imposing liability on launching state for damage inflicted on other State parties is the interest of the international community in securing a reliable state liability regime to responds to the ultra-hazardous activities of launching States[49]. Damage occurring through launches or returns to Earth may even take place beyond a launching State's territory and occur in non-territorial areas, thereby emphasizing the need for a strict liability solution even further[50].

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45 Article VII OST.

46 Article VII defines launching states as a State that launches or procures the launching of an object into outer space; State from territory or facility an object is launched.

47 Article II Liability Convention.

48 Article III Liability Convention.

49 Kerrest, Armel and Smith, Lesley Jane. (2009). Article VII. In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 1. (Pp. 126 – 145). Carl Heymanns Verlag.

50 Ibid.

Principle of Registration[51]

The jurisdiction and control over objects launched into space is determined by the State on whose registry such space object is registered. It establishes the legal relationship between the State of registry and its space object[52]. Complementary to this, registration is carried in combination with the 1975 Registration Convention wherein State has an obligation to register in the UN registry as well as national registry in the prescribed manner.

Protection of Environment[53]

Activities in outer space are per se ultra-hazardous activities, which may be harmful to both the space and the terrestrial environments. Based on Principle 21 of the 1972 Stockholm Declaration[54] on Human Environment and Principle 2 of the 1992 Rio Declaration[55] on Environment and Development Article XI of OST establishes that States have the duty to conduct exploration of outer space, including the moon and other celestial bodies, so as to avoid harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and where necessary to adopt appropriate

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51 Article VIII OST.

52 Schmidt-Tedd, Bernhard and Mick, Stephan. (2009). Article VIII. In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 1. (Pp.146 – 168). Carl Heymanns Verlag.

53 Article IX OST.

54 Declaration of the United Nations Conference on the Human Environment (Stockholm 05-16 June 1972), adopted 16 June 1972.

55 Rio Declaration on Environment and development (Rio de Janerio 03-14 June 1992).

measures for this purpose[56]. Moreover, where a State 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 state parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it must undertake appropriate international consultations before proceeding such activity or experiment[57]. The Outer Space Treaty attempts to achieve globally sustainable exploration and use of outer space not only by the contemporary civilization but by future generation as well[58].

Duty of openness and transparency

States are under duty to inform the UN Secretary-General as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations, and results of their space activities[59]. It enables fair and equitable access to information and knowledge gathered acquired through the carrying out of space activities of all nations[60] .Moreover, subject to certain conditions, each State is obligated to keep open to representatives of other States all stations, installations, equipment, and space vehicles on the Moon and other

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56 Article IX OST.
57 Article IX OST.
58 Supra n. 32.
59 Article XI OST.
60 Mayence, Jean-Francois. (2009). Article XI. In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 1. (Pp. 189 – 206). Carl Heymanns Verlag.

celestial bodies[61]. Visits and proper implementation of Article XII will help build friendly relations regarding space endeavors facilitating transparency and confidence building measures in outer space activities.[62]

THE BASIS FOR NATIONAL SPACE LEGISLATION

Lyall and Larsen[63] have expressed that though the Age of formal space law treaties might have closed but commercial use of space, particularly by non-governmental entity requires regulation in a manner not inconsistent with international law. Requirements range from launch permits, debris mitigation and the assignment of radio frequencies to restrictions which a state may impose for reasons of national security. Many new issues that need a legal response can best be regulated by national legislation. How and how well a particular state implement their international obligation is important.

The primary basis for national space legislation for any state stems from its international obligation[64]. Article VI of OST imposes an obligation upon state parties to authorize and supervise their non-governmental activities whereas Article VII of the OST make the launching state internationally liable for damages caused by space

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61 Article XII OST.

62 Smith, Lesley Jane. (2009). Article XII. In Hobe, Schmidt-Tedd. Schrogl(eds.) Cologne Commentary on Space Law Volume 1. (Pp. 207 – 214). (Carl Heymanns Verlag); Jakhu, Ram. (2005). Legal Issues Relating to the Global Public Interest in Outer Space. Journal of Space Law 31 – 110.

63 Lyall, Franciss and Larsen, Paul B. (2009). Space Law A Treatise Ashgate.

64 Hermida, Julian. (2004). Legal Basis for National Space Legislation. Kluwer Academic Publishers.

objects. Article VIII of OST imposes an obligation to register space objects in accordance with the Registration Convention. Besides the effective discharge of international obligation other reasons for advocating for national space legislation includes effective environmental protection, preservation and protection of objects launched into space and protection of IP rights and data protection.

Judge Lachs[65] has expressed that States are under an obligation to take appropriate steps in order to ensure that natural or juridical persons engaged in outer space activity conduct it in accordance with international law.[66] "In view of the increasing participation of private actors in space activities, appropriate action at the national level is needed, in particular by authorizing and supervising non-governmental space activities".

The Principle of 'authorization and continuing supervision'

Since space activities are ultra-hazardous, involve high amount of risk, Article VI of the Outer Space Treaty eliminates the public versus private distinction for the State parties and necessitates the appropriate state to continuously authorize and supervise its non-

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[65] Lachs, Manfred. (1972). The Law of Outer Space – An Experience in Contemporary Law-Making. p.122. Martin Nijhoff Leiden.

[66] Gerhard, Michael. (2005) National Space Legislation – Perspectives for Regulating Space Activities. In Marietta Benko (eds. Space Law: Current Problems and Perspectives for Future Regulation 2005 (Pp. 75-90). Eleven Publishers; Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl(eds.) (2004). Proceedings of the Project 2001 plus -Workshop Towards a Harmonized Approach for National Space Legislation, 29-30 January 2004, Berlin, Germany.

governmental activities assuring the other parties that all space activities are conducted in accordance with the principles of the Outer Space Treaty[67]. This creates the fundamental basis for national space legislation for any space faring nations enabling private participation in space activities. Though there is no bar in the participation of private players but such participation has to be authorized and continuously supervised by the state because States bear international responsibility for any activity carried in outer space, irrespective of whether it is carried by governmental agencies or non-governmental agencies[68]. Such an approach has been prescribed to ensure all activities and consequences of such activity are within the ambits of international law.

The Outer Space Treaty does not specify the list of activities for which the state will bear responsibility, but all such activities have to be in conformity with Article II – XII of this treaty. Such activities should not be for the purpose of appropriation of outer space, or for military use; i.e., only peaceful use is permitted, not to harm the environment of outer space, to promote international co-operation. Apart from fulfilling their international obligation states need to ensure that the activities of private entities do not jeopardize their national security.

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[67] Spencer, Jr. Ronald. L. (2010). International Space Law: A Basis for National Regulation in Ram Jakhu (Eds.) National Regulation of Space Activities. (p .7.) Springer

[68] Article VI OST.

For the purpose of authorization and continuing supervision national space legislation becomes inevitable which will guarantee transparency in the system giving equality of opportunity in space activities to all private players.

International liability for damage

The State party which launches or procures the launching or from whose territory or facility an object is launched is internationally liable for damages caused to other state party[69]. This liability is imputed to the State for all launching operations irrespective of the fact whether such operations are by non-governmental entities or government. Thus though a private operator may be authorized to launch a space object from the territory of the State for purely personal gains but in the event of any kind of liability arising, it will be the liability of the State and not of the participating private player. The damage expected during launch or return to the Earth may occur even beyond the territory of the launching state, thereby emphasizing the need for strict liability. This liability may also arise by virtue of a collision of two space objects in outer space. Thus any damage arising by the activities of non – governmental activity, the offending state may be asked to compensate the state that has suffered the damage.

What will constitute damage cannot be said precisely in advance. Both material and immaterial damage may be covered and the amount of compensation is to be determined on the principle of

[69] Article VII OST.

restoring the party to the position as it was prior to the incident. The Liability Convention imposes absolute liability for damages caused on the Earth and on fault basis for damages caused in outer space.

The liability of the state for its national activity is continuous and unlimited in time, amount and territoriality[70]. It will be in the interest of the State and the participating private entity to ensure that the conditions of authorization are complied with throughout the whole duration of the activity and not only before an activity has begun. Space participants must furnish all necessary information from time to time so that continuous supervision of their activity can be achieved.

The damage resulting from authorized space activities will create a heavy financial burden on the launching state. It will be in the interest of the authorizing state as well as the private participant who has been given authorization to take compulsory insurance of sufficient amount against third parties liabilities. If State pays for damage caused by its authorized space activity it can statutorily seek indemnification from such private participants.

As an authorization condition the state can formulate uniform rules for space participation, ascertain that authorized private participants actually have the relevant technological and financial capacity and their activities are in compliance to international obligations.

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[70] Ibid.

The Principle of Registration

The jurisdiction and control of an object launched into space is determined by the registration of a space object[71]. Though there may be many states involved in the launching of a space object, there can only be one state on whose registry such an object will be registered and the jurisdiction and control of that particular space object shall vest with that State. National space legislation will mandatorily require registration of all space objects launched by the private entity failing which sanctions are likely to be invoked. The registration condition will enable to retain jurisdiction and control over space objects irrespective of the fact that they have been launched by a private entity. A state can take over jurisdiction if needed and thus have all possible ways for controlling such private space activities. The national register for this purpose may demand name of the launching state(s)/ name of private launching entity: natural or legal person, date and territory or location of the launch, general function of the space object, basic orbital parameters and any other additional information.

Due to the commercialization of space activities, the space object may be subject to transfer of ownership and control. The transfer of a space object may cause inconveniences for the originally authorizing state if this state is at the same time also the liable 'launching state'. As long as the holder of authorization and the transferee act under the jurisdiction of the same state, the transfer

[71] Article VIII OST.

demands the authorizing state to ensure that the transferee also meets all requirements set up for the granting of an authorization. If the transferee acts under the jurisdiction of another state, international agreements are necessary to establish an obligation to the state which is appropriate to authorize and continuously supervise to exempt the launching state from its international liability.[72] Since there is no such international agreement as of today, national space legislation can fill this vacuum. Thus national space legislation will exempt an original state from any liability occurring post-transfer of a space object and will empower the state under whose jurisdiction such a space object passes to continuously supervise and ensure the original conditions of authorization are being followed.

Environmental Considerations

Outer Space is a natural resource used by all states. Presence of such extra-terrestrial entities increases the likely risk of destruction of the space object(s) due to collision. A tiny piece of debris floating in outer space does not recognize the nationality of space objects. It is likely debris generated from a state object may destroy its own space object or space object of any other state. In either case loss is suffered by the state itself. Thus it is in the interest of the state to avoid the generation of debris in outer space. This gives another reason to have rules formulated for the

[72] Gerhard, Michel. (2002). Transfer of Operation and Control with Respect to Space Objects – Problems of Responsibility and Liability of States. German Journal of Air and Space Law, 4. 571-581.

operation of space objects and control of debris created by usage of such object. State practices suggest that some states explicitly take up obligations for the prevention of contamination of outer space or of adverse changes to the environment of the Earth.

Under the preventive principles of International Environmental Law national space legislation will be the best solution prescribing the standards for space object, avoidance of contamination of space and in event of any debris (including non-functional satellite), create the follow up measure for restoration. Inspection of quality and standard of space object, environment impact assessment is pertinent for avoiding space debris in the case of private player's participation.

Protection and preservation of objects launched into space

Since the accessibility of outer space is increasing and more and more nation joins the 'space club' it is necessary states are assured that their objects launched into space remains unaffected by increasing participation of other states. Article VII of the Outer Space Treaty confirms that jurisdiction and control of space objects is retained by the state party on whose registry such objects are registered. The ownership of objects launched into space remains unaffected by their presence in outer space or celestial bodies or by their return to the Earth. Though the state of registry retains their ownership over space objects but accessibility to other states over such space object is not denied. Article XII of the OST guarantees accessibility to objects launched into space of other

state parties on the basis of reciprocity and advance notice. This gives yet another basis to state of registry to legislate for the protection and preservation of their objects launched into space and determine conditions of accessibility to other state parties.

The Working Group on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space on the work conducted under its multi-year work plan identified following reasons to enact national space legislation [73]

- to fulfill obligations under treaties to which a State had become a party,
- to achieve consistency and predictability in the conduct of space activities under the jurisdiction of the State
- to provide a practical regulatory system for private sector involvement.
- improved national coordination and the integration of a wider range of national
- Competence of national authorities in the authorization, registration and supervision of space activities.

The efforts of the committee enabled adoption of the UNGA resolution on national legislation.[74] The Resolution is a set of

[73] A/AC.105/C.2/101 Report of the Working Group on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space on the work conducted under its multi-year workplan submitted to the UNCOPUOS legal sub-committee, 3 April 2012.

[74] Supra n. 25.

recommendations proposing what national space legislation must minimally address. Dunk has expressed that national space legislation will not be needed only in the circumstance if a Government does not want to promote private participants.[75]

CONCLUSION

With increasing participation of private space activities it is necessary that states must regulate their activities. The regulation of space activities by way of national space legislation is in the very interest of nations which shall not only enable them to discharge their international obligation effectively but shall also act as a safety valve against any liability arising from private space activities. The liability can be avoided if States continuously authorize and supervise the activities of private participants. Thus any national space legislation must minimally address conditions of authorization which may include disclosure of technological and financial capacity, environment safeguards conditions, registration and transfer condition of space objects, insurance and indemnification conditions.

Sputnik was an alarm to check unbridled conquest of space and today with increasing private participation in outer space, the need of the hour is to regulate space activities.

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[75] Von der Dunk, F.G. (2009). The International Law of Outer Space and Consequences at the National Level for India: Towards an Indian National Space Law? In Indian Yearbook of International Law and Policy. (Pp. 135-163). Satyam Law International.

INTERNATIONAL REGULATORY REGIME ON SPACE SECURITY IN FORM OF "SOFT LAW" AND "HARD LAW" CONTEXTS AND INDONESIAN PERSPECTIVE

Mardianis[*]

Abstract

Space Security is one aspect that has been discussed since the beginning of the discussion of the formulation of The Outer Space Treaty of 1967. The narrowness of the provision agreed in the Outer Space Treaty of 1967, technological development activities and the emergence of various types of new space technologies with new capabilities as well as the involvement of parties other than the State in space activities has made space security become critical issues discussed in international fora. This paper will analyze the hermeneutic method proposed international arrangement space security issues contained tends to lead to two forms: first proposal in the form of soft law: the draft International Code of Conduct of Space Activities (draft ICoC) and the second in the form of hard law: The draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (Draft PPWT). Based on two proposals, the analysis will be focused to positions and perspectives of Indonesia particularly the problem of the forms of regulation, discussion forum, the threat of space debris and access to space technology. The results obtained in practice of ratification that Indonesia does not distinguish between the legal form "hard law" and "soft law", discussed in the forum under the United Nations system, is more concerned with the anticipation of the

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impact of the fall of space object both man-made or not, and there are access for developing countries, especially Indonesia for mastery of space technology.

INTRODUCTION

Background

Outer space for military activities began just over a year after launching of the Sputnik 1 in 4 October 1957 with the launch of the first military-related satellite in December 1958.[1] Although the 1967 Outer Space Treaty[2] has demilitarized the Moon and other celestial bodies, outer space as a whole has only been partially demilitarized[3]. This has partly resulted from the interpretation given by the USA and the USSR to the Treaty. They have interpreted the provisions of the Treaty for peaceful applications of space technology as meaning non-aggressive rather than non-

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1 Jasani Bupendra (ed), 1984, *Space weapons – The arms Control Dilemma*, Stockholm International Peace Research Institute (SIPRI), page 3.

2 Annals Air and Space Law, 2005, Volume XXX-II, ICASL, Mc. Gill University, Montreal Canada, page 274: Under Outer Space Treaty, space is open to everyone and belong to no one. Space is also global commons that borders every community on Earth and secure access to and use of space has been critical to its development as a new center of strategic social economic, and military power. Space has also a critical part of our national and international infrastructure; its support our medical system, our public services, our communications systems, our financial institutions, and our militaries. Indeed, todays it is difficult to imagine our societies and economies functioning without the support of space based-assets.

3 Article IV of the 1967 Outer Space Treaty stated "States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner". Elsewhere in the Treaty emphasis is placed on the use of outer space "in the interest of maintaining international peace and security".

military. Whether The Treaty was ever meant as a significant disarmament measure is not clear.[4]

With the development of a significant actors in space activities and the involvement of global and regional international organizations as well as private companies operate satellites[5] has made security issues proposed space activities back to be discussed in various international fora[6]. In addition, the use of space technology to support military activities in the United States invasion of Iraq, it is

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4 Jasani Bupendra (ed), 1984, *opcit*., page 4. See also, Annals Air and Space Law, 2005, *opcit*.: The dinamics of space security remain poorly understood. Space is uniquely fragile as an environment and the resources of Earth's orbital space are limited. It is not clear how we can balance today's competing civil, commercial, and military interest against the need for sustainable uses of space that will ensure its utility for future generations.

5 Gérard Brachet, The origins of the "Long-term Sustainability of Outer Space Activities" initiative at UN COPUOS, *Space Policy 28 (2012) 161-165*, page 161: The number of actors in outer space has increased significantly in the past 20years. Ten nations have acquired a space launch capability, more than 55 nations and regional governmental organizations operate satellites in Earth orbit, and an increasing number of private companies operate commercial satellite systems, both in the geostationary Earth orbit (GEO), mostly for telecommunications, and in low-Earth Orbit (LEO) for telecommunication and earth imaging. Close to 5000 satellite launches took place between 1957 and the end of 2011, and the rate of launches is now stabilized at about 70-80 per year. More than 1000 satellites are operational today, of which 440 operate on the geostationary ring, but about 16,000 space objects more than 10 cm in size are tracked and catalogued by the US Space Surveillance Network, of which 22% only are satellites, 12% are rocket bodies, 7% mission-related objects and 59% fragments (up from 41% before China's deliberate destruction of one of its own satellites by a ground-based missile on 11 January 2007)

6 Hays Peter L., Lutes Charles D., Towards a theory of space power, *Space Policy 23 (2007),* page 208., A number of security challenges and dilemmas arise as actors pursue individual interests in space: space assets are fragile and vulnerable; the lines between civilian and military space assets have become blurred; capabilities designed to enhance security through space may reduce security in space, and vice versa; and achieving the economic and sociocultural potential of space requires enduring stability in the domain.

happening WTC bombings and shootings to satellite Feng-Yun by China itself[7] has raised fears of space faring countries[8] on the use of space technology by parties who are not supposed to for peaceful purposes, in particular the use by non-state actors that could endanger the continuity of space activities and which in turn may threaten international peace and security.

The complexity of the discussion on space security issues is not only seen from different understandings of space activities for peaceful purposes, space weapons, and the militarization of space, but also associated with access to space technology and the sustainability of space activities.

Various proposals proposed by States[9] to attempt to solve space security problems has always been a wide debate. Different views

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7 Scott Henry T., Improving the Shield: Mitigating The danger of space debris by enforcing and developing already existing space law", in Dempsey Paul Stephen (ed), (2009), Annals of Air and Space Law Volume XXXIV, page 728: The Chinese ASAT test on January 11, 2007, "ushered in an explosive new chapter in space age", In addition to demonstrating Chinese desire to asymmetrically threaten the United Stated military's dependence on satellites and integrated information systems technologies, the ASAT test produced over 1.300 pieces of relatively large debris, many of which are expected to remain in orbit for years or even decades. According to experts at SpaceSecurity.org, the Chinese ASAT test is considered to be one of the worst manmade debris-creating even in history.

8 Major Elizabeth Seebode Waldrop, Integration of Military and Civilian Space Assets: Legal and National Security Implications, The Air Force Law Review, assessed 11 February 2014, page 167-168: The usual yardstick for whether a State is "space-faring" or a "space power" is whether it can *build and launch* satellites. Thus, the "spacefaring" States currently are the U.S., Russia, France, the Ukraine, members of the European Space Agency (ESA), China, Japan, India, and Israel.

9 There are several *Proposals and Initiatives* submit as follow: (1) Amendment of Art. IV of the OSTCD/851, 1988, States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons

by states due to various fundamental problems that cannot be agreed between develop countries and developing countries, among others the nature of the soft and hard law, discussion forums, the threat of space debris and access to space technology.

In the field of outer space security, currently, there are four standing initiatives: (1) the updated draft of legally binding PPWT[10] submitted by China and Russian Federation in Conference of Disarmament (2) International initiative on no-first placement of weapons in outer space (NFP)[11] submitted by Russian Federation in Conference of Disarmament (3) provisions of the UN CGE report on TCBMs, submitted by CGE of STSC in UNCOPUOS[12]

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or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.*or any kind of space weapon or system of such space weapons (Venezuela). 1968 Italy already proposed the amendment of the Art. IV of the OST in order to ban "the development and use of earth-or space-based systems designed to damage, destroy or interfere with the operations of other States'satellites": States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner. (2) *Prohibition of space Weapons*, (3) *Prohibition of anti-satellite weapons* (4) *Transparency and Confidence-Building Measures* – TCBM.

[10] Kazuto Suzuki, Technology activities: understanding the realities of space security threats", 9-10- Nov 2014: PPWT-legally binding treaties, it is preventing only space-based weapons, not ground-based. Definition of weapon is any means to disfunction satellittes, that cause current operational satellite can be space weapon.

[11] UNGA First Committee session a draft resolution titled "No first placement of weapons in outer space". Formally NFP political commitments are already taken by all CSTO states parties, Brazil, Indonesia, Sri Langka, Argentina, Cuba. In August NFP political decision was taken by the leadership of China.

[12] Committee on the Peaceful Uses of Outer Space, Updated set of draft guidelines for the long-term sustainability of outer space activities, Scientific and Technical Subcommittee Fifty-second session Vienna, 2-13 February

(4) draft International Code of Conduct of Outer Space Activities[13] submitted by European Union.[14]

PPWT proposal received no response from the majority of countries is partly due to this proposal is intended to set a form of the international legally binding. LTS proposal still in the stage of identification of the issues and lead to the safety and sustainability of space activities. While the draft International Code of Conduct of Outer Space Activities is growing rapidly begin the discussion was proposed in 2008 at EU level, now began to globalize even get into the Asia-Pacific regional forum as well as the support of

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2015, A/AC.105/C.1/L.340, 22 October 2014, para 12. The guidelines contained in this document are applicable to all space activities, whether planned or ongoing, and all phases of a mission life cycle, including launch, operation and end-of-life disposal. The guidelines relate to the policy, regulatory and organizational aspects, the scientific and technical aspects, and international cooperation and capacity-building aspects of the safe and sustainable conduct of outer space activities, and are based on a substantial body of knowledge and the experiences of States, international organizations, national and international non-governmental organizations and private sector entities. Therefore, the guidelines are relevant to both governmental and non-governmental entities. para 13. The guidelines are voluntary and not legally binding under international law. They are intended to supplement guidance available in existing standards and regulatory requirements. para 14. The implementation of the guidelines is considered a prudent and necessary step towards preserving the outer space environment for future generations. States, international intergovernmental organizations, national and international non-governmental organizations and private sector entities should voluntarily take measures, through their own applicable mechanisms, to ensure that the guidelines are implemented, to the greatest extent feasible and practicable.

[13] Draft International Code of Conduct for Outer Space Activities, Version 31 March 2014. Ibid. Kazuto Suzuki, (2014), Non-legally binding rules: ICoC-Setting up international standard and guidelines of behaviors –socially binding rules. Preventing international disfunctioning of satellites and reserving rights of self-defense as deterrence.

[14] V. Yermakov, Globalization of the multilateral initiative political obligation not to be the first to place weapons in outer space, 9-10- Nov 2014, page 1.

various develop countries, both at global and regional levels including the United States. Countries which openly oppose the proposal ICOC is the initiator PPWT with reasons that are still not understood. Indonesia supported the first draft PPWT which is formally introduced to the CD, though it is based on elements proposed in a working paper to the CD in June 2002[15] and through various ways invited to participate into the State that supports the draft International Code of Conduct of Outer Space Activities (the next is called 'the draft ICoC').

Methodology

Method of analysis based on hermeneutic. The aim of this analysis is to deepen the investigation of elements useful to achieve the research objective of this paper.[16] However, the influence of the interpreter's worldview is not a drawback, but a fundamental condition of the cognitive process[17]. To assign the necessary degree of rigor to the hermeneutic process, which is required in scientific researches[18] proposed a structured process of

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[15] Preventing the placement of weapons in outer space: A backgrounder on the draft treaty by Russia and China, This fact sheet was produced by the Reaching Critical Will project of the Women's International League for Peace and Freedom. web: www.reachingcriticalwill.org email: info@reachingcriticalwill.org.

[16] Bolis Ivan, Morioka Sandra N., Sznelwar Laerte I., "When sustainable development risks losing its meaning. Delimiting the concept with a comprehensive literature review and a conceptual model", *Journal of Cleaner Production xxx (2014) 1-14.*, page 2-3.

[17] Gadamer, H.G., 1989. Truth and method, second ed. (J. Weinsheimer, D. Marshall, Trans.). Crossroad, New York.

[18] Ricoeur, P., 1981. Hermeneutics and the Human Sciences: Essays on Language, Action and Interpretation. (J.B., Thompson, Trans. (Ed.)). Cambridge UniversityPress, Cambridge.

interpretation based on both Heidegger's and Gadamer's ideas. According to Ghasemi et al.[19] and Tan et al.[20], Ricoeur's theory of interpretation is based on hermeneutic circles of explanation (examination of the internal nature of the text), understanding (in-depth interpretation of the text considering its context), and appropriation (changes made by the interpreter).

In connection with the draft International Code of Conduct of Outer Space Activities and the draft of PPWT, as well as the objectives of this study was limited to hermeneutic analysis of issues of concern and view of Indonesia and delivered in discussion international fora of the draft Code of Conduct both multilateral and regional levels.

There are four major issues of Indonesian concern on the draft Code of Conduct as follows: (1) distinguish proposal between the legal form of "hard law" and "soft law" (2) should be adapted under United Nations System, (3) the threaten of space debris (4) access to space technology.

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[19] Ghasemi, A., Taghinejad, M., Kabiri, A., Imani, M., 2011. Ricoeur's theory of interpretation: a method for understanding text (course text). World Appl. Sci. J. 15, 1623-1629.

[20] Tan, H., Wilson, A., Olver, I., 2009. Ricoeur's theory of interpretation: an instrument for data interpretation in hermeneutic phenomenology. Int. J. Qual. Methods 8, 1-15.

INTERNATIONAL REGULATORY OF SPACE SECURITY

Understanding of Space Security

The understanding of the security space has evolved from the perspective of armaments and military involvement in outer space[21], prevention of arms race in outer space[22], earth and human safety from threats of space technology both ground-based and space-based weaponry[23], developed into the security and sustainability of space activities[24]. All of these perspectives to date

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[21] Mineiro Michael C., "*The United States and The Legality of Outer Space Weaponization*: *A Proposal for Greater Transparency and a Dispute Resolution Mechanism",* Electronic copy available at: http://ssrn.com/abstract=1268022, Annals Air and Space Law, 2008, Volume XXXIII, ICASL, Mc. Gill University, Montreal Canada, page 449. Weaponization occurs only when space weapons are deployed. Space weapon deployment is defined as: *the placement of a space weapon into such a state as to facilitate the immediate or near immediate military use (i.e. employment) of said weapon.* It should be mentioned that the *employment* of a space weapon requires a legal analysis distinct from that of *deployment.* The weaponization of outer space requires only the *deployment* of a space weapon. *Employment* of a space weapon will be subject to *jus in bello* and *jus ad bellum*, as well as other relevant international law.

[22] Annals Air and Space Law, 2005, Volume XXX-II, ICASL, Mc. Gill University, Montreal Canada, , page 283: Since 1981, the United Nations General Assembly (UNGA) has passed an annual resolution asking all states to refrain from actions contrary to the peaceful use of outer space and calling for negotiations within the UN Conference on Disarmament (CD) on a multilateral agreement related to The Prevention of an Arms Race in Outer Space (PAROS).

[23] David Webb, "*On the Definition of a Space Weapon (When is a Space Weapon Not a Space Weapon?)",* 2006, page 14 : *space-based weapon'* and *`space-based system'* mean a device capable of damaging or destroying an object or person (whether in outer space, in the atmosphere, or on Earth) by: (i) firing one or more projectiles to collide with that object or person; (ii) detonating one or more explosive devices in close proximity to that object or person; or (iii) any other undeveloped means

[24] Williamson Ray A., Assuring the sustainability of space activities, *Space Policy 28 (2012) 154-160,* page 155-156: Stated simply, a sustainable outer space environment is one in which all humanity can continue to use outer

in its application has not been fully regulated. Existing arrangements are limited to certain types and aspects of each. In the context of space security in the view of Cesar Jaramillo stated:

The actions and developing related to space security are valued as nine indicators which are categorized in three themes[25]:

a. Conditions of space environment:
   1) *the space environment*;
   2) *space situational awareness*);
   3) *space laws, policies, and doctrines*.

b. The kinds of actors in space activities and how space used to:
   4) *civil space programs and global utilities*;
   5) *commercial space*;
   6) *space support for terrestrial military operations*;

c. Status of space technology relevant caused related to protect and interference of space system or danger to the Earth from space:
   7) *space systems protection*;

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space for peaceful purposes and socioeconomic benefit over the long term. Brian Weeden and Tiffany Chow have approached the question of the sustainability of outer space activities from the standpoint of the management of common pool resources (CPRs), an approach that draws on the work of economist Eleanor Ostrom and others who have focused their research on what makes a sustainable commons on Earth. Weeden and Chow's work can shed light on the various components of the management of a CPR and how one might best proceed in establishing the necessary components of a sustainable space environment. It is well understood that reaching a sustainable state for space activities will require the development of technological solutions to the problem of debris and orbital crowding. These include a) mitigation of the creation of debris during launch operations and in spacecraft operations; b) space situational awareness; and c) debris removal.

[25] Cesar Jaramillo, "*Space Security Index*", UNCOPUOS, 7 June 2011, page 7.

8) *space systems negation*;

9) *space-based strike capabilities*.

Based on the indicator of space security, there are two different analyses of the term of space security. The first is defined security in a more modern sense, arguing that traditional peace keeping and peace enforcement are no longer sufficient. Sustainable security is needed, i.e. protection, reconstruction, civil and military cooperation (CIMIC), disarmament and state building. Focusing on how to ensure security on Earth through space, the analysis considered satellite imagery for military and intelligence purposes and emphasized the growing role of the defense sector in civil and military cooperation and protection. The second is defined the tools for ensuring security in outer space, referring in particular to space debris questions. This was articulated around two main concepts: security on Earth and in outer space. Greater efforts need to be undertaken, particularly regarding access to data, to ensure both better security on Earth and better management of space activities for security in outer space.[26]

As summary, we can be defined space security is the secure and sustainable access to and use of space, and freedom from space-based threats, corollary space security goes beyond the national security considerations of a single state. [27]

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[26] Julie Abou Yehia, Threats, risks, and sustainability—Answers from space: Results of the ESPI conference, *Space Policy 24 (2008) 113–115*, page 2.

[27] Cesar Jaramillo, *Opcit*.

Existing International Regulatory on Space Security

In order to review the international arrangement on space security can be seen three forms of international law, namely the law of treaties, customary international law and soft law.[28] Up to now there are several types of international regulations related to space security arrangements. Under the existing provisions, Vlasic has summarized that the following outer space activities are considered non-peaceful and thus are prohibited under the current international law:

- Placing nuclear weapons in orbit around the Earth or on celestial bodies or anywhere else in outer space (Article IV, Outer Space Treaty -OST; and Article III, Moon Agreement);
- Placing weapons of mass destruction in orbit around the Earth, on celestial bodies or anywhere else in outer space (it is generally accepted that in the category of "weapons of mass destruction" are included biological and chemical agents, now expressly prohibited by the Biological Weapons Convention and the Chemical Weapons Convention).
- Establishment of military bases and installations, the testing of any kind of weapons and the conduct of military

[28] Ben Baseley-Walker, "*Current international space security initiatives*", In Rathgeber Wolfgang, Schrogl Kai-Uwe, Williamson Ray A. (eds.), "*The Fair and Responsible Use of Space: An International Perspective*", SpringerWienNewYork, 2010, p.110-111.

maneuvers on the moon and other celestial bodies (Art. IV, para. 2, OST; Art. III, Moon Agreement)

- Carrying out any nuclear weapon explosions, or any other nuclear explosion, anywhere in outer space (Limited Test Ban Treaty, Art. I.1 (a))
- Military or hostile uses of environmental modification techniques that could produce widespread adverse effect on the human environment, which includes both the Earth's atmosphere and the surrounding outer space (ENMOD Convention, Arts. I and II).
- Any hostile act, committed by a device designed to operate in outer space, that causes damage to the assets of another State located in outer space (General International Law; United Nations Charter, Article 2(4); UNGA Resolution 3314 (XXIV) of 4 December 1974, on the Definition of Aggression, Articles 3 and 4).
- Any intentional physical interference, whether or not resulting in damage, with space assets of another State located in outer space without that State's authorization (e.g., unauthorized inspection of another State's satellite) (general international law, OST Arts. III, VI, VIII, and IX).

- Any intentional electronic interference with civilian satellites (ITU Constitution, Arts. 38, 45 and 48; ITU Radio Regulations, Arts. 4, 15 and 22). [29]

Thus, under the existing regime, according to Skotnikov stated that several space activities unregulated and therefore non-prohibited activities in outer space one can mention, *inter alia*:

- development, testing and deployment of anti-satellite weapons;
- development, testing and deployment of space-based non-nuclear missile defense systems and their components;
- creation and deployment in outer space of means of optical jamming of space-, air- or ground-based technical assets.[30]

Additionally, the publicity stated justifications why members of the US administration do not favour entry into treaty obligations for the prevention of an arms race in outer space, and indeed may prefer to repudiate existing treaties, can be summarized in 12 points, namely that[31]:

- *Regarding new treaties*

(1) Forbidden space-related activities could not be verified.

(2) Space-related weapons could not be identified.

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[29] Institute of Air and Space Law, Faculty of Law, McGill University, Montreal, Canada, "*Background Paper: "Peaceful" and Military Uses of Outer Space: Law And Policy*", February 2005, page 12-13.

[30] L. Skotnikov, Permanent Representative of the Russian Federation, Statement at the Plenary Meeting of the Conference on Disarmament, "Prevention of an Arms Race in Outer Space" Geneva (26 August 2004)

[31] Dahlitz Julie, "*SDI versus arms Control*", *Space Policy, May 1985*, page 143.

(3) US research funding for outer space would be heavily curtailed without the commitment to deploy.

(4) Without ASAT it would be impossible to retaliate in kind against Soviet attack on US satellites.

(5) Additional Soviet ASAT and other space weapons could be developed, even if development would be verifiable and notwithstanding a treaty, by proceeding under the guise of civilian or ostensibly unrelated military activities.

(6) A 'hedge' of superiority is required to guard against any unanticipated Soviet breakthrough.

(7) US ASAT weapons are needed to destroy Soviet satellites used for tracking and accurate targeting.

(8) An arms race in outer space would put intolerable economic and political pressure on the USSR, leading to its disintegration or, at least, to the substantial weakening of its military potential.

(9) Outer space weapons should be developed to serve as 'bargaining chips' in dealings with the USSR.

- *Regarding existing treaties*

(10) It is necessary to perfect 'point defence' for the protection of retaliatory weapons, notably ICBM and SLBM, against the newly developed targeting accuracies of Soviet weapons.

(11) US ABM weapons are needed to protect Europe from nuclear attack, the continued threat of which could unravel the NATO alliance.

(12) The 'ultimate' objective, to protect the USA with SDI techniques using multilayered defences, should not be abandoned, no matter how improbable success appears to be, because defensive weapons give more security than do offensive weapons.

Based on description above, the security of space assets and the preservation of the space environment are important conditions for the preservation of outer space for exclusively non-aggressive purposes. At present international law provides only a minimum amount of security. However, the application and enforcement of international law remains uncertain. Conventional norms protecting the use of outer space for exclusively non-aggressive purposes are preferable and necessary. The maintenance of a minimum level of order in outer space must be ensured at all times. It is equally imperative to update the existing body of treaties in conformity with the latest technological and political developments. The goal of exclusively non-aggressive uses of outer space can be achieved only by closer international co-operation.[32]

[32] Ge´rardine Meishan. Goh, Keeping the peace in outer space: a legal framework for the prohibition of the use of force, *Space Policy 20 (2004) 259–278*, page 276.

COMPARATIVE BETWEEN TWO PROPOSALS

Historical Background of Two Proposals

As outlined in the background, from a variety of proposals proposed on behalf of the State or group of States, is now split into two proposals, namely the Chinese-Russian proposal on PPWT and EU proposal on ICoC. The historical background of two proposal can be highlighted in the following table:

Years	Draft PPWT[33] (Hard Law)	Draft ICoC (Soft Law)
1981	UNGA Res 36/97c	
1982	PAROS listed as one agenda item for the CD.	
1985 to 1994	CD Ad Hoc Committee on PAROS, Dispite of the stalemate in the CD, discussions on PAROS continued.	
2000	China's Position on and Suggestions for Ways to Address the Issue of Prevention of An Arms Race in Outer Space at the Conference on Disarmament, CD/1606.	
2001	Possible Elements of the Future International Legal Instrument on the Prevention of the Weaponization of Outer Space, CD/1645	
2002	Possible Elements for a	

[33] LIU Wei, The PPWT: China's Efforts Towards A New Outer Space Treaty", ARF Space Security Workshop, Tokyo, Oct. 9, 2014

	Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Threat or Use of Force against Outer Space Object, by seven countries including China, Russia, **Indonesia,** Belarus, Vietnam, CD/1679.	
2006	four working papers jointly submitted by China and Russia in the CD: - Transparency and Confidence-Building Measures in Outer Space Activities and the Prevention of Placement of Weapons in Outer Space, CD/1778. • Definition Issues Regarding Legal Instruments on the Prevention of the Weaponization of Outer Space, CD/1779. • Existing International Legal Instruments and Prevention of the Weaponization of Outer Space, CD/1780. • Verification Aspects of PAROS, CD/1781.	

2007	the Compilation of Comments and Suggestion to the Working Paper on PAROS Contained in Document CD/1679 dated 28 June 2002, CD/1818	The first draft of the Code.
2008	the first draft of PPWT, CD/1839, February 2008	Agreed to it within EU structures in June 2008 and Code of Conduct For Outer Space Activities As approved by the Council on 8-9 December 2008[34].
2009	Answers to the Principal Questions and Comments on the Draft PPWT, CD/1872, August 2009.	officially released its Draft Code of Conduct for Outer Space Activities to the international community 2009.
2009 to 2014	Informal discussions continued on PAROS.	Feedback on the draft was solicited from countries outside Europe, resulting in four revised versions, published on 27 September 2010[35], 5 June 2012[36], 16 September 2013[37] and 31 March 2014.

[34] Council of The European Union, Council conclusions and draft Code of Conduct for outer space activities, PESC 1697, CODUN 61, Brussels 17 December 2008.

[35] Council of The European Union, Council Conclusions concerning the revised draft Code of Conduct for Outer Space Activities, 14455/10, PESC 1234, CODUN 34, ESPACE 2, COMPET 284, Brussels, 11 October 2010.

[36] European Union, Working Document Revised Draft International Code of Conduct For Outer Space Activities, 5 June 2012, United Nations Institute for Disarmament Research (UNIDIR), Multilateral Meeting on the Development of an lnternational Code of Conduct for Outer Space Activities, 5 of June 2012, Vienna lnternational Centre Conference Room Ml.

[37] The Draft International Code of Conduct for Outer Space Activities, Version 16 September 2013.

General Content of The draft PPWT

The draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (PPWT) was submitted by Russia and China on 12 February 2008 before the plenary session of Conference on Disarmament (CD). Its text was based on a Working Paper that was introduced before CD in 2002, titled "Possible Elements for a Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects".[38] Its primary argument is the need and urgency to prevent weaponization of space.[39] The draft PPWT is the first draft treaty on outer space formally introduced to the CD, though it is based on elements proposed in a working paper to the CD in June 2002 by Russia, China, Viet Nam, Indonesia, Belarus, Zimbabwe, and Syria. [40]

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[38] Conference on Disarmament, "Letter Dated 27 June 2002 From the Permanent Representative of the People's Republic of China and the Permanent Representative of the Russian Federation to the Conference on Disarmament Addressed to the Secretary-General of the Conference Transmitting the Chinese, English and Russian Texts of a Working Paper Entitled "Possible Elements For A Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects", CD/1679, 28 June 2002.

[39] Gunjan Singh**, "***PPWT : An Overview"*, in "Decoding the International Code of Conduct *for* Outer Space Activities", Institute for Defence Studies and Analyses, New Delhi, 2012, p. 47-48.

[40] *Preventing the placement of weapons in outer space: A backgrounder on the draft treaty by Russia and China*, This fact sheet was produced by the Reaching Critical Will project of the Women's International League for Peace and Freedom. *web: www.reachingcriticalwill.org email: info@reachingcriticalwill.org*, page 1.

In August 2009, Russia and China separately submitted their working papers, which addressed the questions and comments raised on the initial draft treaty proposal.5 They argued that the existing space regime and laws were inadequate to deal with the emerging situation. The PPWT does not talk about disarmament, but only about prevention of weaponization of space.

The PPWT specifically aims to prevent the weaponization of outer space. In this respect, the core provision is contained in Art. II, which reads: "The State Parties undertake not to place in orbit around the Earth any object carrying any kinds of weapons, not to install such weapons on celestial bodies and not to place such weapons in outer space in any other manner; not to resort to the threat or use of force against outer space objects; and not to assist or induce other States, groups of States or international organizations to participate in activities prohibited by this Treaty". The PPWT contains provisions that guarantee that the treaty cannot be interpreted as impeding the rights of states to explore and use outer space and to exercise their inherent right of self-defence (Art. IV and V). [41]

Interestingly, the PPWT includes, inter alia, a definition of weapons in outer space (Art. I (c)).27 Compliance with the treaty provisions would be enforced by an Executive Organization, which would be responsible for considering complaints of treaty

[41] Tronchetti Fabio, "Preventing the weaponization of outer space: Is a Chinese-Russian-European common approach possible?", *Space Policy 27 (2011) 81-88*, Page 84.

violations, for organizing and conducting consultation with state parties and for taking measures to put an end to the violation of the treaty (Art. VIII). Verification is put on hold by foreseeing the possibility of subsequent negotiation of an additional protocol (Art. VI). In order to ensure compliance and to promote transparency and confidence-building, state parties are encouraged to practice, on a voluntary basis, confidence-building measures (Art. VI).[42]

As Jinyuan Su writes, the PPWT should ban space-based weapons and ground-based ASATs in parallel. The PPWT not covering ground-based ASATs is unacceptable to the USA and is doomed to fail, as did the one promoted by the USSR in 198170; one banning ASATs solely would be regarded by countries concerned over space weaponization as discriminatory.[43] Fortunately, a consensus is developing between states. Russia and China have recognized a separate provision banning ASATs as a possible additional element of the PPWT. However, this is a consensus in principle. A question still exists at to what extent in the spectrum of "research, development, testing, production, storage, deployment and use" they should be prohibited. A purely ideological path would be to formulate substantive obligations and then design a mechanism to ensure compliance with them. But, in reality, constraints and verification are interactive.[44]

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[42] Ibid.

[43] Jinyuan Su, "Towards an effective and adequately verifiable PPWT", Space Policy 26 (2010) 152-162, page 157.

[44] Ibid.

General Content of the draft International Code of Conduct of Outer Space Activities

The Space Code of Conduct initially stemmed from a document agreed to within and put forth by the European Union (EU) under the French Presidency. The Lisbon Treaty of 2009 empowered the EU to engage in foreign and security policy making, enabling it to engage in such an exercise. EU Member States authored the first draft of the Code in 2007 and 2008, agreed to it within EU structures in June 2008, and officially released its Draft Code of Conduct for Outer Space Activities to the international community later that year. Feedback on this draft was solicited from countries outside Europe, resulting in four revised versions, published on 27 September 2010, 5 June 2012[45], 16 September 2013 and 31 March 2014[46].

According to the latest version of the draft International Code of Conduct of space activities, the text is structured under 4 headings: I. Purpose, Scope, Principles; II. Safety, Security and Sustainability; III. Cooperation Mechanisms and IV. Organisational Aspects.

These current Draft Code of Conduct lists as its main purposes and scope:

[45] Tiffany Chow, Draft International Code of Conduct for Outer Space Activities Fact Sheet, secure world foundation, www.swfound.org. accessed May 2013.
[46] The Draft International Code of Conduct for Outer Space Activities, Version 31 March 2014.

a. to enhance the safety, security, and sustainability of all outer space activities pertaining to space objects, as well as the space environment. (19)
b. to addresses outer space activities involving all space objects launched into Earth orbit or beyond, conducted by a Subscribing State, or jointly with other States, or by non-governmental entities under the jurisdiction of a Subscribing State, including those activities conducted within the framework of international intergovernmental organisations.
c. to establishes transparency and confidence-building measures, with the aim of enhancing mutual understanding and trust, helping both to prevent confrontation and foster national, regional and global security and stability, and is complementary to the international legal framework regulating outer space activities. (21)
d. to open to all States, on a voluntary basis. This Code is not legally binding, and is without prejudice to applicable international and national law.[47]

It includes the following guiding principles:

- the freedom for all States, in accordance with international law and obligations, to access, to explore, and to use outer space for peaceful purposes without harmful interference, fully respecting the security, safety and integrity of space

[47] *Ibid.*, Point 2.

objects, and consistent with internationally accepted practices, operating procedures, technical standards and policies associated with the long-term sustainability of outer space activities, including, inter alia, the safe conduct of outer space activities;

- the responsibility of states to refrain from the threat or use of force against the territorial integrity or political independence of any state, or in any manner inconsistent with the purposes of the Charter of the United Nations, and the inherent right of states to individual or collective self-defence as recognised in the Charter of the United Nations;
- the responsibility of States to take all appropriate measures and cooperate in good faith to avoid harmful interference with outer space activities; and
- the responsibility of States, in the conduct of scientific, civil, commercial and military activities, to promote the peaceful exploration and use of outer space for the benefit, and in the interest, of humankind and to take all appropriate measures to prevent outer space from becoming an arena of conflict.[48]

In an attempt to develop a set of practices that would enable safer, more secure operations in outer space, "This Code, in endorsing best practices, contributes to transparency and confidence-building measures and is complementary to the existing framework

[48] *Ibid.*, Point 3.1.

regulating outer space activities".[49] In addition, they reiterate their support to encouraging efforts in order to promote universal adoption, implementation, and full adherence to such instruments:

(a) Existing international legal instruments relevant to outer space activities, including:

- the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967);
- the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968);
- the Convention on International Liability for Damage Caused by Space Objects (1972);
- the Convention on Registration of Objects Launched into Outer Space (1975);
- the Constitution and Convention of the International Telecommunication Union and its Radio Regulations, as amended
- the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water (1963) and the Comprehensive Nuclear Test Ban Treaty (1996).

[49] Williamson Ray A., *opcit*., page 158.

(b) Declarations, principles, recommendations and guidelines, including:

- International Co-operation in the Peaceful Uses of Outer Space as adopted by the United Nations General Assembly's (UNGA) Resolution 1721 (December 1961);
- the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space as adopted by UNGA Resolution 1962 (XVIII) (1963);
- the Principles Relevant to the Use of Nuclear Power Sources in Outer Space as adopted by UNGA Resolution 47/68 (1992) and the Safety Framework for Nuclear Power Source Applications in Outer Space as endorsed by UNGA Resolution 64/86 (2010);
- the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries as adopted by UNGA Resolution 51/122 (1996);
- the International Code of Conduct against Ballistic Missile Proliferation (2002), as endorsed in UNGA Resolutions 59/91 (2004), 60/62 (2005), 63/64 (2008), 65/73 (2010) and 67/42 (2012);

- the Recommendations on Enhancing the Practice of States and International Intergovernmental Organisations in Registering Space Objects as endorsed by UNGA Resolution 62/101 (2007);
- the Space Debris Mitigation Guidelines of the United Nations Committee for the Peaceful Uses of Outer Space, as endorsed by UNGA Resolution 62/217 (2007).[50]

In the context of space security, the Subscribing States resolve, in conducting outer space activities, to:

- refrain from any action which brings about, directly or indirectly, damage, or destruction, of space objects unless such action is justified:
  - by imperative safety considerations, in particular if human life or health is at risk; or
  - in order to reduce the creation of space debris; or
  - by the Charter of the United Nations, including the inherent right of individual or collective self-defence.

  and where such exceptional action is necessary, that it be undertaken in a manner so as to minimise, to the greatest extent practicable, the creation of space debris;

[50] The Draft International Code of Conduct, o*pcit.*, Point 3.1.

- take appropriate measures to minimize the risk of collision; and
- improve adherence to, and implementation of, International Telecommunication Union regulations on allocation of radio spectra and space services, and on addressing harmful radio-frequency interference.[51]

The EU's draft Code of Conduct received mixed reactions in the international community. Several emerging space powers expressed concerns about not being involved in the process from the outset. Substantive issues with the current draft of the Code center on its vague terminology and lack of definitions, the degree to which it is politically binding, concerns that it would limit freedom of action in space for military and intelligence activities, and suspicion that it is "arms control in disguise". After an extensive interagency review within the U.S. government and a Joint Staff assessment that the draft Code of Conduct could limit space operations, the United States announced in January 2012 that it would not sign the current EU draft. Rather, the United States announced it would join with foreign partners in developing an International Code of Conduct for Outer Space Activities, using the EU draft as a foundation. Other nations, such as Japan and Australia, have made similar declarations. A series of international expert meetings, open to all interested States, will focus on developing a voluntary, non-binding Code of Conduct acceptable

[51] *Ibid*., Point 4.2.

to as many nations as possible. This version was the latest version which had been supported by United States and other nations, such as Japan and Australia.

ANALYSIS OF INDONESIAN PERSPECTIVE

According to aim this paper, analysis will be focusing to four aspects which Indonesian concerns related to the draft Code of Conduct, and Draft PPWT namely (i) distinguish proposal between the legal form of "hard law" and "soft law" (2) should be adapted under United Nations System, (3) the threaten of space debris (4) access to space technology.

The legal form of “hard law" and "soft law"

The early history of codes of conduct may be traced back to the nascent field of international humanitarian law. A pioneering role in issuing (self-regulatory) codes for business conduct was undertaken by the International Chamber of Commerce (ICC) with its *Code of Standards of Advertising Practice* (1931), which was accompanied by a number of other marketing-related codes. In 1976, the OECD issued the Guidelines for Multinational Enterprises (MNCs) as part of a broader Declaration on International Investment and Multinational Enterprises; the ILO Tripartite Declaration on MNCs was adopted the next year, establishing voluntary guidelines covering employment, training, working conditions and industrial relations. As international instruments of corporate social responsibility, they have been of limited effect; yet, they stand at the centre of the universe of

corporate responsibility codes, at once establishing a comprehensive framework of aspirational standards of good corporate practice that serve as benchmarks, and laying the groundwork for future efforts. The 1970s not only saw the emergence of *intergovernmental* corporate regulation, but also the birth of the modern idea of *private self-regulation*, which is typically retraced to the 'Sullivan Principles' (1977), a privately initiated set of standards designed to guide companies operating in South Africa with a view to employing business leverage to effectively change apartheid practices. [52]

In the following years, further public initiatives emerged from within the UN family, such as the so-called *Set of Multilaterally Agreed Equitable Principles and Rules for the Control of Restrictive Business Practices*, adopted by the UN general assembly in 1980. Efforts were also made under the auspices of the United Nations Conference on Trade and Development (UNCTAD) to elaborate an *International Code of Conduct on Transfer of Technology*. While adoption of the latter never came about, a more successful example is the WHO/UNICEF International Code of Marketing of Breast-milk Substitutes, which the World Health Assembly adopted in 1981. [53]

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[52] Keller Helen, "*Corporate Codes of Conduct and their Implementation: The Question of Legitimacy*", University of Zurich, diakses, 9 Oktober 2012, p.5-7.

[53] Ibid.

In the field of space activities, historically, formulation of international framework for Space Activities through the United Nations Committee on Peaceful Use of Outer Space has been developed from soft-law (1961 to 1967) to hard-law (1967 to 1979) and back to soft-law (1979 to Now) as shown below: [54]

- 1961: UNGA Resolution on principles on international co-operation in the peaceful uses of outer space;
- 1963: UNGA Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space;
- 1967: Outer Space Treaty (103 ratifications and 25 signatures);
- 1968: Rescue and Return Agreement (94 ratifications and 24 signatures);
- 1972: Liability Convention (91 ratifications and 22 signatures);
- 1975: Registration Convention (60 ratifications and 4 signatures);
- 1979: Moon Agreement (15 ratifications and 4 signatures);
- 1982: UNGA Principles Governing Satellites for International Direct Television Broadcasting;

[54] Jakhu Ram S., "*National Security Aspects of Commercial Space Regulation Rules of the Road*", Institute of Air and Space Law, McGill University, Montreal, Canada, slide 6-7.

- 1986: UNGA Principles Relating to Remote Sensing of the Earth from Outer Space;
- 1992: UNGA Principles Relevant to the Use of Nuclear Power Sources in Outer Space;
- 1996: UNGA Declaration on International Cooperation related to space common benefits;
- 2004: UNGA Resolution on Application of The "Launching State" Concept;
- 2007: UNGA Guidelines for Space Debris Mitigation;
- 2007: UNGA Resolution on Safety Framework for Nuclear Power Source Applications in Outer Space;
- 2013: UNGA Resolution on Recommendations on national legislation relevant to the peaceful exploration and use of outer space; and
- 2013: UNGA Resolution on Transparency and confidence-building measures in outer space activities.

This shows that development of hard international space law through the United Nations has stopped since 1979 and continued the development of soft international space law until now.[55] While several agreements have been adopted through the International Telecommunication Union (ITU), Conference on Disarmament (CD), and UNDROIT, but several important issues related to

[55] Ibid. slide 8.

international space framework are being discussed in other fora by a *few space* powers and adopted with passing UNCOPUOS as follows:

a. Inter-Agency Space Debris Coordination Committee (IADC): The space agencies of Canada, China, Europe, India, Russia, the U.S. and others have also been debating the problem of space debris through this informal group. The IADC drafted *voluntary guidelines* for mitigation of space debris production.

b. The Global Exploration Strategy (GES), promulgated by the 14 leading space agencies in May 2007, is arguably an attempt to avoid adopting binding international rules and to keep the 1979 Moon Agreement dormant.

c. The Committee on Earth Observation Satellites (CEOS). CEOS membership encompasses the world's government agencies responsible for civil Earth Observation (EO) satellite programs, along with agencies that receive and process data acquired remotely from space.

d. International Committee on Global Navigation Satellite Systems (ICG). The ICG was established in 2005 through the United Nations Office of Outer Space Affairs with non-binding Terms of Reference for the purpose: of promoting the use/application of GNSS on global basis. The ICG encourages *coordination* among providers of GNSS core

> systems and augmentations in order to ensure greater compatibility and interoperability.[56]

Conditions mentioned above shows the nature of specificity in setting space activities so that in its regulation requires a special regulation anyway. According to Aoki, the specificity of these space activities in general can be seen from four things: The first, each activity tends to be multinational or even universal, but the number of the suppliers is limited. Secondly, space activity inherently involve military application. Thirdly, space application have the potentially of bringing more benefit to developing countries. And fourthly, it has to be pointed out that the concept of the 'province of all mankind' is strongly embedded in the exploration and use of space in comparison with other activities.[57]

Additionally, International instruments by which states establish or adopt non-legally binding frameworks, such as code of conduct or other instrument contained TCBMs don't have an authorized definition. At a very basic level, they all aim to define standards and principles that ought to guide the behavior of the addresses in a particular way. As such, they are regulatory instruments. They may respond to abroad range of regulatory concerns in a non-binding instrument. However a code of conduct represents the firm expectation of the Subscribing States of good conduct reflecting

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[56] *Ibid*., slide 9-10.

[57] Setsuko Aoki, The function of 'soft law' in the development of international space law, In Marboe Imgard, (ed), 2012, *Soft Law in Outer Space: The function pf Non-Binding Norms in International Space Law*, Bohlaw Verlag Wien-Koln-Graz, page 60.

the values and aspirations of the group. Even if the concern is not aimed at accepting legally binding commitments, the value of political engagements contained in a code should not be underestimated. While not being a binding instrument, a code would produce the effect of legally.[58]

Besides that, the practical effect of such soft law and frameworks is not necessarily evident or clear, as it is not currently known in many cases what States are doing, if anything, in relation to those non-legally binding instruments. This tends to lead to difficulty in evaluating how those resolutions and guidelines have been implemented both in the domestic sphere and on the international plane.[59]

The draft Code of Conduct stated "Subscription to this Code is open to all States, on a voluntary basis. This Code is not legally binding, and is without prejudice to applicable international and national law".[60]

In order to ensure compliance with soft law, several conditions have to be met for effectiveness of soft law regulation, (i) transparency is crucial, (ii) publicity stands out as another requirement (iii) essencial conditions appear to be clarity and

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[58] Marchisio Sergio, Soft Law and Space Security, ASEAN Regional Forum Space Security Workshop, Tokyo, October 9-10, 2014, page 2.

[59] Committee on the Peaceful Uses of Outer Space, New agenda item on general exchange of information on practices in relation to non-legally binding instruments for outer space activities, Legal Subcommittee Fifty-second session Vienna, 8-19 April 2013, A/AC.105/C.2/L.291, 11 April 2013, para 2.

[60] The Draft Code of Conduct, 2014, *opcit*, Point 2.

precision (iv) it is reliability (v) involvement of the potential addressees and the awareness for the necessity of the regulation, (vi) establishment of a compliance system (vii) it is not aim at a behavior, like hard law, but respect for rule of law must be upheld.[61]

In Indonesia, based on the Law Number 24 of 2000 on International Treaty states:

Article 9:

(1) Ratification of a international agreements by the Government of the Republic of Indonesia shall be conducted as required by the treaty.

(2) Ratification of international agreements referred to in paragraph (1) is done by Act or Presidential decree.

Article 10:

Ratification of a international agreement with the Act when relating to:

a. problems of politics, peace, defense, and security of the state;

b. changes or delimitation of the territory of the Republic of Indonesia;

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[61] Crhistian Brunner and Georg Konigsberger, 'Regulatory impact assessment – a tool to strengthen soft law regulation', In Marboe Imgard, (ed), 2012, *Soft Law in Outer Space: The function pf Non-Binding Norms in International Space Law*, Bohlaw Verlag Wien-Koln-Graz, page 94-95.

c. sovereignty or sovereign rights of the state;

d. human rights and the environment;

e. establishment of new legal norms;

f. loans and / or grants.

Article 11

(1) Ratification of a international agreement that the material does not include the material referred to in Article 10, carried out by a presidential decree.

Under these provisions, Indonesia does not recognize the distinction soft law and hard law, since the ratification of the legal form of soft law agreements such as the MOU, Guidelines, the code of conduct which theoretically is a moral binding, is not legally binding. Distinction views of a controlled substance under an international treaty. If the substance contains a legal binding even intended as a legal binding, the soft law has an international agreement, otherwise if soft law contains expectations and still be followed up with binding international agreement, the legal form of soft law is a moral bond that can't have any impact as the agreement international.[62]

[62] Juwana Hikmahanto, Catatan Atas Masalah Aktual Dalam Perjanjian Internasional, *Indonessian Journal of International Law, Volume 5 Nomor 3, April 2008*, page 450 [Juwana Hikmahanto, Noting on Realities Problems in The Law of International Treaty, Indonesian Journal of International Law, Volume 5 Number 3, April 2008]

Ko Swan Sik views the distinction of making international law is not merely a nomenclature issue, but rather a matter of political effort between countries to avoid or reduce the attachment of a legal obligation without acknowledging such intention. The main clue in this case is the interpretation of all the factors that play a role in the occurrence of the treaty. [63] In addition, the instrument of ratification of an agreement in the form of laws and regulations in accordance with their criteria that the instruments is determined to be delivered to the place that receives the deposit to indicate the participation of Indonesia, but this instrument can n't be used for the validity of the treaty, all provisions are not translated into national law.

Even in case of binding treaties, states are free as to manner in which, domestically, they put themselves in the position to meet their international obligation; the choice between the direct reception and application of international law, or its transformation into national law by way of statute, is a matter of indifference, as is the choice between the various forms of legislation, common law, or administrative action as the means for giving effect to international commitments.[64]

Based on description above, both proposals, Indonesia argues that each proposal has a different emphasis of matter. PPWT more

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[63] Ko Swasn Sik, Beberapa Catatan Atas Permasalahan Treaty di Indonesia, *Indonesian Journal of International Law, Volume 5 Nomor 3, April 2008*, page 440 [Ko Swasn Sik, Several Notes of Treaty Problems in Indonesia, *Indonesian Journal of International Law, Volume 5 Nomor 3, April 2008*]

[64] Marchisio Sergio, *opcit*.

emphasis on disarmament in outer space, while the ICOC more emphasis on the application of the provisions of the existing space law with adding information about the system and TCBM for space activities. As stated by Prof. Supancana in ARF meeting that two proposal can be completed between each and others[65]. This argument relevant to function of soft law since soft law is a special type of law with special normative effects. The various normative effects of soft can be regrouped into a triad of functions, depending on its relation to hard law: The *pre-law function* (1) is the preparation of hard law. The *law-plus function* (2) is the completion, complementation, the spelling out and the interpretation of hard law. The *para-law function* (3) is the substitution of non-available hard law. Policy benefits and dangers of soft instruments vary according to their function.[66]

Additionally, in discussion of PPWT, Indonesia views and supports for disarmament as a whole in outer space as China-Russian proposal published in 2002. While the formulation of proposals of the code of conduct, Indonesia convey the importance of the establishment of legally binding provisions, even though the establishment of the provisions of space activities todays tend toward non-binding provisions, even in the Indonesian legal system itself is not known on the terms of international non-legally binding. In addition it is also based on the view that the provision

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[65] Note of authors in ASEAN Regional Forum Space Security Workshop, Tokyo, October 9-10, 2014.

[66] Anne Peters and Isabella Pagotto, "*Soft Law as a New Mode of Governance: A Legal Perspective*", University of Basel, 28 February 2006, p.28-30.

of binding instrument compliance problems still cannot be guaranteed, how the provision is not binding?, but the author views it is not appropriate position because of the tendency towards the formation of soft law developments in space activities, and compliance are expected is only political commitment to run, with the aim to achieve best practices.

The Discussion Forum

A range of international institutions, such as the United Nations General Assembly (UNGA), United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS), The International Telecommunication Union (ITU), and the Conference on Disarmament (CD) have been mandated to address space security issues.[67]

Another hurdle route to a future International Code of Conduct for Outer Space Activities is the negotiation venue. The Code of Conduct has been discussed by ad hoc process, rather than existing UN fora such as the CD or the COPUOS. Criticisms have been raised as to its necessity and legitimacy. On the one hand, the EU proposal in large parts overlaps with international efforts in the COPUOS and the CD. On the other hand, the EU is not duly authorized by any international institution to establish an international Code of Conduct for outer space activities.

Acknowledging that the already negotiated treaties governing outer space activities are inadequate to safeguard the security, safety and

[67] Annals Air and Space Law, 2005, *opcit*., page 283.

sustainability of outer space, there are two choices for the international community: one is to strengthen existing outer space law by negotiating legally binding treaties on space arms control and space environmental protection; the second is to propose a non-binding instrument. The two choices are exemplified by the PPWT in the CD and the Code of Conduct by the EU respectively. [68]

A legally binding treaty would be an ideal breakthrough. But as hold by the EU, the COPUOS and the CD only gather a limited number of countries, and it would like to broaden international participation in the initiative and bring discussions to a swifter conclusion. In addition, as mentioned above, the CD operates by consensus and its progress in negotiating arms control agreements is typically slow; and the COPUOS, on the other hand, tends to limit its authority on civil activities in outer space. The stagnancy in existing fora prompted the EU to "set up a separate kitchen". As a matter of fact, the two approaches are not either-or scenarios, but could run in parallel. Mindful that a legally binding treaty like the PPWT is the ultimate goal and the Code of Conduct is no substitute thereof, the international community should not exclude soft-law instruments such as the Code of Conduct categorically. By reducing suspicion and building confidence between States, it is contributive to the achievement of the ultimate goal. The Code of Conduct states that the proposal is without prejudice to ongoing

[68] Jinyuan Su, Zhu Lixin, The European Union draft Code of Conduct for outer space activities: An appraisal, *Space Policy 30 (2014) 34-39*, page 38.

and future work in other appropriate fora such as the COPUOS and the CD (Preamble). Meanwhile, the results of the Meeting of Subscribing States are to be brought in an appropriate manner to the attention of relevant international fora including the UN General Assembly, the COPUOS and the CD (Section 8.4). [69]

The question remains as to the legitimacy of the Code of Conduct, given the lack of an international mandate. The issue of legitimacy consists of two dimensions, namely the internal dimension and the external dimension. The authority of the EU to directly negotiate international space agreements derives from the Treaty of Lisbon 2009. But at the internal level, the Code of Conduct does not seem to on its own represent a cohesive European space security strategy. Hence in order to improve its internal legitimacy in space security matters, it is suggested that the EU should follow up the Code of Conduct with other initiatives, integrate these with each other and establish links to existing EU-institutions and strategies. Whereas the internal legitimacy of the Code of Conduct is a matter among EU states, its external legitimacy is more often raised by non-EU states. As long as participation is voluntary and the Code of Conduct does not impose responsibility upon third party States, the answer to its legitimacy seems to be affirmative.

Based on the description above, problems on space security discussion forum is done in CD, but several other international fora also discussed the security aspects of space for particular interests

[69] *Ibid*.

such as UNCOPUOS discuss aspects space security for peaceful purposes and prosperity, ITU for the purpose of avoiding collision and interference. These conditions led to the proposed security arrangements in the proposed space-related forums. However, the related to proposal, is generally opposed by countries on the grounds that the proposal submitted a forum is not authorized to discuss aspects of the proposed regulation. This is one reasons why the European Union initiated a discussion forum outside the UN system to discuss the draft Code of Conduct.

In connection with that, in draft Code of Conduct stated "The Subscribing States resolve to promote the development of guidelines for outer space operations within the appropriate international fora, such as the UN Committee on Peaceful Uses of Outer Space and the Conference on Disarmament, for the purpose of promoting the safety and security of outer space operations and the long-term sustainability of outer space activities".[70]

This proves that the Code of Conduct recognizes the existence of other forums that discuss space security issues as their mandate. Therefore, in the discussion of legalization Code of Conduct Indonesia believes that:

a. Indonesia argues that the draft Code of Conduct should be discussed and passed in the UN system, inclusive, and legally binding (*hard law*).

[70] The Draft Code of Conduct, Version 2014, *ibid*., Point 3.2.

b. Needs to be a note for the Indonesian delegation, whatever view is extreme even though the substance of the draft Code of Conduct, given that the consultative forum and the tendency of the adoption will be done in the form of a non-legally binding, the Indonesian delegation should not hesitate speak out besides formats non-legally binding can also be a reason for developing countries if developed countries against it.

Even though the Code of Conduct was initially discussed on the forum outside the United Nations system, but in the adopted of the Code of Conduct, Indonesia proposed that passed through the official forum of under the UN system the associated space activities, like the adoption of the Space Debris Mitigation Guidelines and other issues that passed through UNCOPUOS.

Space Debris

According to Technical Report on Space Debris: "Space debris are all man-made objects, including their fragments and parts, whether their owners can be identified or not, in Earth orbit or re-entering the dense layers of the atmosphere that are non-functional with no reasonable expectation of their being able to assume or resume their intended functions or any other functions for which they are or can be authorized"[71]. And then, COPUOS Guidelines Stated "For the purpose of this document, space debris is defined as all

[71] United Nations, Technical Report on Space Debris: Text of the Report adopted by the Scientific and Technical Subcommitee of United Nations Committee on the Peaceful Use of Outer Space", New York, 1999, page 2.

man-made objects, including fragments and elements thereof, in Earth orbit or re-entering the atmosphere, that are non-functional".[72]

The aspect of debris mitigation is one of the key objectives of the draft Code. Debris constitutes a threat to objects in space (most references in the Code are related to those), but also to objects on the ground. The Code calls for a political commitment to abide by existing guidelines for debris mitigation. The countries will be aware that the practical implementation of existing commitments to debris mitigation leaves a lot to be desired.

Related to space debris, draft Code of Conduct stated:[73]

> 4.3. In order to minimise the creation of space debris and to mitigate its impact in outer space, the Subscribing States resolve to limit, to the greatest extent practicable, any activities in the conduct of routine space operations, including during the launch and the entire orbital lifetime of a space object, which may generate long-lived space debris.
>
> 4.4. To that purpose, they resolve to adopt and implement, in accordance with their own internal processes, the appropriate policies and procedures or other effective measures in order to implement the Space Debris

[72] The Space Debris Mitigation Guidelines endorsed by United Nations General Assembly Resolution 62/217 (2007)

[73] The Draft Code of Conduct, *opcit*., Point 4.3. and Point 4.4.

> Mitigation Guidelines of the United Nations Committee for the Peaceful Uses of Outer Space as endorsed by United Nations General Assembly Resolution 62/217 (2007).

Under these provisions, there are two important things that efforts to prevent space debris and to implement the Space Debris Mitigation Guidelines endorsed by the United Nations General Assembly Resolution 62/217 (2007).[74] However, that provision is more focused on prevention, while efforts were made to space debris mitigation guidelines.

For Indonesia, which consists of over 17,000 islands and territories stretching from West to East, the possibility of falling space debris is greater. So the Indonesian attention to space debris is more focused on the dangers of both man-made or not objects fall. Judging from the formulation of the Code of Conduct related to the problem of space debris that is more focused on the issue of space debris that can be said in outer space prioritize the interests of the State of satellite owners, and application guidelines, which is still applied by the space faring States. Thus the provisions of the draft Code of Conduct for space debris problem can't accommodate the interests of Indonesia views that not only emphasizes on space

[74] The Space Debris Mitigation Guidelines endorsed by United Nations General Assembly Resolution 62/217 (2007); Contain seventh principles: (i) Limit Debris Release during normal operation (ii) Minimize potential for break-ups during operational phase (iii) Limit the probability of accidental collision in-orbit (iii) Avoid intentional destruction and other harmful activities (iv) Minimize potential for post-mission break-ups resulting from stored energy (vi) Limit the long-term presence of spacecraft and launch vehicles orbital stages in LEO after the end of their mission (vii) Limit the long terms interference of spacecraft and launch vehicle orbital stages in GEO.

debris in space but also emphasizes space debris falling to Earth and also give attention to a space object is not manmade (natural object).

Access to space

Access to space technology is an important issue not only for space faring nations but also developing countries, especially Indonesia. This realities in lines with US views that The U.S. believes "[t]he ability to access and utilize space is a vital national interest because many of the activities conducted in the medium are critical to U.S. national security and economic well-being." Many experts hold that the guaranteed ability to access space is only achieved by maintaining a healthy domestic industrial base, including commercial launch services, and government policies that support international competitiveness. [75]

In fact, access to space technology, especially dual use technology is very limited even closed for developing countries because of limited proliferation by multilateral export control regimes. "Dual use" technology is traditionally defined as technology that is commercial or civilian in nature, but that can be used either directly or indirectly to produce sophisticated weaponry (e.g., computer hardware and software, encryption software, and ceramics). However, the current interdependence of military and non-military space services has implications beyond this traditional

[75] Waldrop Elizabeth Seebode, Integration of Military and Civilian Space Assets: Legal and National Security Implications, The Air Force Law Review, accessed 11 February 2014, page 176-177.

definition, since the identical space *services*, not just the underlying technology, are used by both civilians and military simultaneously. [76]

This gives rise to very delicate policy considerations. On the one hand, cooperation with foreign nations promotes political and economic ties with those nations, enhances mutual and collective defense capabilities through technological interoperability, and gives a State access to foreign technology (lowering costs, increasing business for domestic companies, and thereby strengthening overall domestic economy). On the other hand, since so much space technology is potentially or actually "dually used," the providing of such technology and services must not be done in such a way as to jeopardize national security. Therefore, the requirements of arms control, non-proliferation, export control, and foreign policy must be considered before sharing such technologies and services internationally. [77]

Under these conditions, and in the draft Code of Conduct contained provisions that:

> "6.3.Subscribing States, particularly those with relevant space capabilities and with programmes for the exploration and use of outer space, should contribute to promoting and fostering international cooperation in outer space activities, giving particular attention to the benefit for and the interests of

[76] *Ibid*.
[77] *Ibid.*

developing countries. Each Subscribing State is free to determine the nature of its participation in international space cooperation on an equitable and mutually acceptable basis with regard to the legitimate rights and interests of parties concerned, for example, appropriate technology safeguard arrangements, multilateral commitments and relevant standards and practices.

6.4. The Subscribing States endeavour to organize on a voluntary basis, to the extent feasible and practicable, and consistent with national and international law, and obligations, including non-proliferation commitments, activities to familiarize other Subscribing States with their programs, policies, and procedures related to the exploration and use of outer space, including:

- familiarization visits to improve understanding of a State's policies and procedures for outer space activities;
- expert visits to space launch sites, flight control centres, and other outer space infrastructure facilities;
- observations of launches of space objects;
- demonstrations of rocket and other space-related technologies, in line with existing multilateral commitments and export control regulations;

- dialogues to clarify information on outer space activities; and
- thematic workshops and conferences on the exploration and use of outer space."[78]

Based on the formula above, especially **"…** the legitimate rights and interests of parties concerned, for example, appropriate technology safeguard arrangements, multilateral commitments and relevant standards and practices" and "demonstrations of rocket and other space-related technologies, in line with existing multilateral commitments and export control regulations", it can't be interpreted such access is open to developing countries, especially Indonesia. This is because until now there has been none of the multilateral export control regimes related to the Indonesian come to be a member of participants.

Additionally, in the discussion of the Code of Conduct, Indonesia expressed the view as follows:

a. Indonesia can support the objectives of the discussion draft Code of Conduct to develop TCBMs for space activities;

b. Some changes to the draft Code of Conduct is considered not quite balanced in regulating the use of space in terms of military and civilian purposes, and have not touched the importance of regulation or prohibition of "weaponization" in space;

[78] The Draft Code of Conduct, *opcit*., Point 6.3 and 6.4.

c. Expected discussion Code of Conduct does not duplicate in a forum discussion PAROS of CD in Geneva or in the context of the UN Group of Government Experts (UN GGE) on Outer Space TCBMs accordance with UNGA No. 65/68 or avoid "pick and choose" on substantive issues by several groups of certain countries deliberately excluded from the discussion in the CD;

d. Indonesia will benefit from the Code of Conduct when there is broad ownership particularly key countries in Asia Pacific, which is not enough support from NATO countries equivalent countries in Asia Pacific alone, and then when the Code of Conduct principles load the principles such as equitable principles and equal access use, transfer of technology, and an emphasis on preserving the environment of outer space for sustainable development, not only on freedom of use; and

e. Asserts that Code of Conduct can't replace the importance of making legally binding instrument both in PAROS and in COPOUS.[79]

In general terms, TCBMs are a means by which government can share information with the aim of creating mutual understanding and trust. But the main objective that differentiate TCBMs from other categories of non-legally binding instruments is that they

[79] Laporan Rapat International Code of Conduct For Outer Sapce Activities, 8 Mei 2013 [Report of Meeting on International Code of Conduct For Outer Sapce Activities, 8 May 2013] .

helping both to prevent military confrontation and to foster regional and global stability and security. They also assist in building confidence as to the peaceful intentions of States and can help to increase understanding, enhance clarity of intentions and create conditions for establishing a predictable strategic situation in both the economic and security arenas.[80]

Security is an essential element of consideration when States decide whether or not to subscribe to an international instrument. As stated by former US Secretary of State, it will not enter into a code of conduct that in any way constrains the national security related activities in space or the ability to protect the United States and its allies. Other States would do nothing but the same.

The desire for a Code of Conduct arose from frustration with the space arms control process and out of concern for the stability of the space security environment. It is thus not difficult to imagine that the Code of Conduct consists of an arms control element. According to its Section 4.2, the Subscribing States resolve, in conducting outer space activities, to refrain from any action which brings about, directly or indirectly, damage, or destruction, of space objects unless such action is justified by imperative safety considerations, in particular if human life or health is at risk; or by the Charter of the United Nations, including the inherent right of individual or collective self-defense; or in order to reduce the creation of space debris; and, where such exceptional action is

[80] Marchisio Sergio, 2014., *opcit*, page 3.

necessary, that it be undertaken in a manner so as to minimize, to the greatest extent practicable, the creation of space debris. [81]

The above provision aims to protect outer space objects from damage or destruction, regardless whether it generates long-lived space debris or not, and be the action originating from outer space or the Earth. It is also worth mentioning that this paragraph does not make a distinction between a State's own space object and that of others. Hence, a State is not allowed to shoot down its own space objects at will. Exceptions are made only as to the reduction of space debris, self-defense and safety considerations. As "safety considerations", other than "security considerations", is used, a national security prerogative is not an expressly authorized reason for the production of space debris. Therefore, the Code of Conduct constrains at least testing and use of space-based and ground-based Anti-Satellites Weapons (ASATs) unless it is conducted for safety, self-defense or reduction of space debris. In contrast, it imposes virtually no limit on the deployment of space-based weapons that are targeted at objects on Earth, which is the concern of many States. Although space is not yet weaponized and there does not seem to be any plan of a full-scale deployment in the short run, prohibiting ASATs while leaving space-to-ground weapons unaddressed creates an imbalance from strategic point of view. [82]

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[81] Jinyuan Su, Zhu Lixin, The European Union draft Code of Conduct for outer space activities: An appraisal, *Space Policy 30 (2014) 34-39*, page 36-37.

[82] *Ibid*.

From security point of view, both the Code of Conduct is flawed on space arms control. The international community should negotiate a more balanced instrument which addresses different States' concern in an equal manner. Ideally, it should place a ban on both the placement of weapons in orbit and the further development of ground-based ASATs. This approach is coherent with the interests of EU, which has recognized that the militarization and possible weaponization of space is a key challenge for its space security. Specifically, the militarization of space risks creating or reinforcing distrust between states and facilitate an arms race which may lead to a weaponization of space when states build up capacities to defend their space assets and respond to the military posturing of other states.

Indonesia, based on statement of Indonesia delegation in Conference of disarmament and The Act Number 21 of 2013, stated don't develop weapon mass destruction and support to ban all any kind weapon in outer space. In this perspective, The Code of Conduct doesn't regulate all aspect but only partially aspect of space security. The space security aspect is regulated in the Code of Conduct only transparency in program and share limited information on space activities. This condition is not relevant with Indonesian perspective.

CONCLUSIONS

Based on analysis above it can be concluded as follows:

a. Initiation of the formation of soft law in outside the UN system in practice has been carried out in the formation of space law, but the endorsement is still being done by the competent authority determines the relevant regulatory issues. Related to the Code of Conduct, Indonesia can support the preparation of soft law initiatives but still through the adoption of the UN system. In addition, it is also suggested that the establishment is not in forms of soft law but hard law. Asserts that the Code of Conduct can't replace the importance of making legally binding instrument both in PAROS and in COPOUS.

b. Indonesia can support the objectives of the discussion the Code of Conduct to develop TCBMs for space activities, but some changes to the the Code of Conduct is still considered not sufficiently balanced to regulate the use of space in terms of military and civilian, and have not touched the importance of regulation or prohibition of "weaponization "in space. Therefore, to combine of two proposals can become of the solution to complete key elements future regulation.

c. Expected discussion the Code of Conduct does not duplicate in a forum discussion PAROS CD in Geneva or in the context of the UN Group of Government Experts

(UN GGE) on Outer Space TCBMs accordance with UNGA No. 65/68 or avoid "pick and choose" on substantive issues by several groups of certain countries deliberately excluded from the discussion in the CD;

d. Indonesia will benefit from the the Code of Conduct if there are the content of principles such as equal access, equitable use, transfer of technology, and an emphasis on preserving the environment of outer space for sustainable development, not only on freedom of use.

WHO OWNS THE UNIVERSE: SOME REFLECTIONS?

Prof. (Dr.) V. Balakista Reddy[*]

> "We live on the shores of this tiny world, the third planet of nine, circling an average star, the sun. This star is just among billions in a great city of stars, the milky way, itself just one among a billion other stellar cities stretching on, perhaps for ever. The universe is more vast than all imagining and filled with wonders more than we can dream, is a heritage for all mankind"[1].

INTRODUCTION

Ever since man came out of cave habitation, he began to look to the heavens in the sky, the moon, the sun, planets and stars, constellations, galaxies and beyond gradually in his journey on this tiny planet. His awe, astonishment, admiration of the outer space shaped into unending quest to decipher the infinite universe resulting in astronomy, astrology, and astrophysics and space technology. The curiosity to know blossomed into transformation of theoretical knowledge into application of knowledge by scientific discoveries, inventions and technological innovations. Man's desire to fly in the air is realized from air space, the next desire to escape into outer space and circle the earth found

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[1] United Nations Magazine, U.N. Chronicle, Volume XXIX, No. 4 (December, 1992), p.49

fulfillment when Yuri Gagarin of erstwhile U.S.S.R went in sputnik in October 1957 and heralded a new space age and new adventures in the space. The landing on the moon in July 1969, by the U.S. Heroes gave further impetus for the exploration of outer space. Man is a bundle of desires and beyond. Along with the desire for pure knowledge, his greed to posses finds its expression in claiming exclusively for self, family or even a nation.

Hence, legal dimension of the issues necessitate national and international efforts to control man's exploration, experimentation, utilization, pollution, occupation and possession of gradually expanding frontiers and jurisdiction from the land, the seas and air into outer space. These are matters of not only national but of international concern. It is the concern for future of entire humanity. The main questions to be addressed are the regulation of state's space activities and claims for exclusive utilization, experimentation, exploration and possession and occupation and ownership of outer space. Commercial and business activities for selling and purchasing outer space began.

In this brief essay some aspects of the future regime of outer space and occupation are reflected upon examining various theories and modes of acquisition of property prevailing in the national legal systems and international legal developments governing outer space are mentioned. Future policies, systems and a comprehensive space legal order visualized.

SPACE AGE AND INTERNATIONAL LEGAL RESPONSES

The legal response to the space era is a post second world war phenomenon. Ever since man entered into the outer space efforts are made towards international cooperation with the ideas and visions and perspectives of jurists and other thinkers. The U.N. General Assembly passed a resolution, on 13th Dec 1958[2], transforming the ideas into legal principles. It declared that the outer space is the common interest of mankind and outer space should be used for peaceful purposes only. An adhoc committee was established for peaceful uses of outer space. The General Assembly passed another resolution on 12 Dec 1959[3] on international cooperation in the peaceful uses of outer space and a committee was appointed for peaceful uses of outer space. The U.N. adopted certain guiding principles for the exploration of outer space on 20 Dec 1961[4]. It proclaimed that the exploration and use of outer space should be for the betterment of mankind and to the benefit of all states, irrespective of stage of their economic and scientific development and asserted the right of all states. It established a committee on the peaceful uses of outer space. In 1962[5], in its declaration it dealt with the principles governing the

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2 General Assembly Resolution, Question of Peaceful Uses of Outer Space 1348 (XIII) A/RES/1348/XIII (11 December 1958)

3 General Assembly Resolution, Offers by Member States of study and training facilities for Inhabitants of Non-Self Governing Territories, 1471 (XIV), A/RES/1471/XIV (12 December 1959)

4 General Assembly Resolution, International Cooperation in Peaceful Uses of Outer Space, 1721 (XVI), A/RES/1721/XVI (20 December 1961)

5 General Assembly Resolution, Report on International Law Commission, 1902 (XVIII), A/RES/1902(XVIII), 18th November 1963

activities of states in the exploration and use of outer space and made it clear that the states are responsible for their activities in outer space. The state in which space craft is registered and retains jurisdiction and control bears international responsibility. Astronauts are declared as the envoys of mankind and not of a particular state and all states should extend assistance to them. The 1963[6] U.N. declaration in its resolution, enjoined the states not to place nuclear weapons in the outer space. A step further is taken by the U.N. in its first international treaty in 1966[7] laying the principles of the Activities of states in the exploration and use of the outer space including moon and other celestial bodies. It banned the use of nuclear weapons in outer space. It is a most important development and aims control in the outer space. It is with the idea and hope to contribute to international cooperation I the scientific and legal aspects of exploration and use of outer space for peaceful purposes. The exploration should be carried for the benefit of all countries. The outer space, the moon and other celestial bodies are open for exploration and use by all states without discrimination on the basis of equality and in compliance with international law. The principle is declared that the moon and its natural resources are the common heritage of mankind. All

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6 General Assembly Resolution, Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space 1962 (XVIII), A/RES/1962(XVIII), 13th December 1963

7 General Assembly Resolution, Report of the Committee on the Peaceful Uses of Outer Space, 2223/XXI, A/RES/2223(XXI), 17th December 1966, pp.11-18.

activities on the moon should be carried on in the interest of mankind, international peace, security, promotion of international cooperation. Hostile acts on the moon are prohibited. No nuclear objects or weapons shall be place in the orbit of moon. Establishment of military bases, testing of military weapons are prohibited. Nations have to inform U.N. and international scientific community of their missions and activities on the moon. States may take samples of minerals from the moon for scientific purpose. Manned and unmanned stations on the moon may be established informing the U.N. of their location. The states have to safeguard life and health of persons on the moon.

It is made clear that the moon is not a subject of national occupation, appropriation, or sovereignty by any means by any state, 1992 was declared as international space year celebrating humanity's future in the space age, stressing and focusing on the importance of understanding the Earth as a single complex interdependent system and the unique role of space science and technology in promoting the welfare, prosperity, progress and understanding.

The outer space treaty of 1967 is a land mark which enunciates the contours of the scope and limitations in the exploration of outer space by the states. The convention on registration of objects launched in outer space in 1974 is another land mark. The Agreement governing the activities of states on the moon and the other celestial bodies, 1979 is another step forward. The proposals

of the committee on the peaceful uses of outer space in 1994 for convening the third U.N. Conference on the exploration and peaceful uses of outer space dealing with future exploration of planets, programs with respect to debris etc paved the way towards the achievement of those objectives.

The principles laid down by various U.N. declaration, multilateral bilateral treaties, agreements which are binding in various degrees are: the principle of freedom of exploration and use by all states without discrimination; the principle of appropriation linked with exploration barring exclusive control and exclusive use of outer space or celestial bodies on permanent basis by any state; the principle of applicability of international law; restriction on military activities; responsibility and 'liability'; common interest and common heritage; international cooperation![8]

COMPREHENSIVE SPACE LEGAL ORDER

In the last half a century the international legal framework developed by U.N. resolutions, treaties, agreements, documents etc in the field of space activities is extensive and complex, but not comprehensive nor adequate to meet the challenges of the 21st century space law adventures and unfolding of human instincts of possession, domination, exploitation, (not merely exploration), subjugation, colonization, aggression occupation, resulting in

[8] Valine Kayser, *Launching Space Objects: Issues of Liability and Future Prospects*, Springer Netherlands, 978-1-4020-0061-4/(2001).

claims by individuals, corporations and states for ownership and sovereignty.

The existing space was evolved during the cold war after the Second World War in the pre-existing historical context carrying its birth marks. An isolated effort for a legal frame work has not resulted in a legal foundation. Number of issues of commercial activities, private ownership, sale, transfer, role of multinational corporations exhaustive rules or liability find no place in view of the times of non-commercial and absence or non-existence non-governmental entries in the space field. The existing legal rules have to be understood and appreciated in the back ground of constraints of the period. Mostly it is a phase of consideration for scientific and technological exploration. Hence, the problems, dimensions of fast changing space scenario vis-à-vis man's quest for knowledge and unquenched thirst for exclusive possession and domination under the impact of racing scientific progress and galloping technological innovations pushing man into the outer space for the satisfaction of adventurous spirit and for green pastures for material gain propelled by unlimited greed.

The future space law has to be developed addressing to the problems, needs and issues of the future:

Once the man's ability increases in his journey into the outer space there is bound to be space rush like the 'gold rush' by individuals, National and International corporations and nation states. How long they can be contained with the preexisting legal framework?

Once you open it for commercial and business activities with profit motive what kind of legal rights of possession, ownership, transfer by sale, lease etc. are to be evolved?

Do the existing jurisprudence or rights meet the requirements without endangering the peace on earth? Do the existing principles of acquisition of property by individuals under state laws or by states under international law sufficient to apply them mechanically to outer space operation? Do the 19th century theories of acquisition – occupation theory, subjugation, cession, prescription, accretion, annexation, lease evolved when space exploration was a scientific fiction fit into the phenomena of space age?

Do we permit individuals, national private companies, multinational corporations and even nation states to claims for exclusive possession, commercialization, and ownership?

How do we meet the challenges of space piracy?

Do we visualize space terrorism and how do we face it? What legal rules are required for it? Can we say the existing rules of criminal law and capabilities of national and international enforcement machinery be enough to curb those activities/

If individual's right to private property on the moon or celestial bodies will be permitted by following what theories of property – the occupation Theory, the labour theory, the Metaphysical theory,

the philosophical theory, the social trust theory, the utilitarian theory, the economic theory, the collectivist or economic theory.

If the individual property is to be acquired the question is who has the power to do so, the state or the international organization?

All these issues and question appear to have been settled by the existing space law or to be fictitious. But, at this stage of space knowledge, technology and man's capacity in outer space it may appear, but at a stage when man gains sufficient control over outer space due to accelerating scientific research and unimaginable technological innovation and skills, we have to face a myriad possibilities, problems and issues.

CONCLUSION

We are in space age and era with expanding space knowledge, increasing space scientists, technicians and space workers. Exploration of outer space has infinite potentialities for the prosperity and good as well as grave danger to humanity. Hence, the world community has to prepare in advance. A new space legal order and regime has to be developed with unique legal rules transcending the existing national legal systems and imperfect and ineffective immature international law. A new space ideology, space philosophy, space policy, space principles and norms have to be the basic structure of a new legal order and space government independent of individual national states, super powers and even incapacitated united nations organization.

The fundamental principles of new space legal order are:-

- The entire outer space exploration, utilization, transformation and settlements should be under the control, supervision and legal regulation of a new space world government.
- No individual or a commercial company can independently have any legal rights of possession and ownership in outer space. It is to be strictly prohibited.
- All travel into the outer space by states or individuals would only be with the permission of the new space government.
- Outer space is for the benefit of entire humanity to be declared so categorically and no super power can be allowed to appropriate for itself.
- All nations of the world should join to form a space government.
- Space criminal law and civil and tortuous law has to be developed.

No one owns the universe, no one can, no one should. Even entire humanity of the earth cannot, as there may be other beings else where. It is natures or Gods creation. Humanity is in a voyage in the space, and is neither a creator and hence nor a owner.

"Perfection of means and confusion of goals seem – in my opinion to characterize our age. If we desire sincerely and passionately the safety, the welfare and the free development of the talents of all men, we shall not be in want of the means to approach such a state"[9]. Albert Einstein.

[9] Albert Einstein and Sonja Bargmann (Translator), *Ideas and opinions*, Bonanza Books, p. 337.

COMMERCIALISATION OF SPACE: PROSPECTS AND ISSUES

Prithvi Raaj Choudhury[*]

Abstract

Ever since the 1960s, countries have tried to exert their influence in the domain of space. But in the 21st century, mankind has looked beyond the dream of space exploration, and have tried to see its business prospects as well. In today's time space is not only used for scientific research, but other aspects as well. This paper seeks to explore the on-going developments in the arena of commerce with respect to space, such as space tourism in inter-continental flights and outer space flights, television broadcasting, insurance for astronauts, intellectual property rights, etc. The paper would try to find out the prospects of these new developments with pertinence to its possible legal issues which might arise during time and course of development of these sparkling viable interests, with reference to India's commercial activities in the arena of space. Though these lucrative domains might be lucrative for many entrepreneurs, there might be many unknown problems which might arise and might serve as a roadblock or a predicament for an aspiring entrepreneur to make use of these developments. Space tourism is one such recent development which has encouraged many top entrepreneurs and companies to look up commerce prospects in space. Television broadcasting, though existing since many years, has become more important after the recent boom of the internet. Remote sensing has also helped many government agencies and climate experts

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to understand weather forecasts and changing patterns of global warming. Asteroids have been known to host rich mineral resources, and might serve as an alternative to mine the already starved resources in earth, but its harmful effects have to be kept in mind.

INTRODUCTION

It has been seen that whatever places and regions human beings explore, they make sure to make every use of it. Same is the case of space, which is no longer the dream of countries to send astronauts, but has become a plethora of opportunities to explore and utilise it. Many companies have now realised that the domain of space can give a variety of opportunities for them to utilise it and innovate new ways of harnessing them.

SPACE TOURISM

In the early 1960s, when the 'space race' race was taking place between USA and USSR, Ehricke and Hilton had envisaged a dream of the future men people might just go to space for the sake of fun.[1] This marked the beginning of space tourism and development of relevant vehicles to ferry such tourists. The requirements of space tourism negated the use of traditional space launch vehicles, and brought about the idea of using Reusable Launch Vehicle (RLV)[2], which could be reused and serve as an economical alternative to other forms of transport, but would

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[1] http://www.spacefuture.com/archive/prospects of space tourism.shtml (accessed on December 13, 2015). http://www.spacefuture.com/archive/prospects of space tourism.shtml

[2] *Ibid*.

necessarily to lead to high amount of expenses during its' design's development phase.

Therefore, the developers would have to keep in mind about various factors which would play into consideration, such as market demand for space tours, cost of production of the space launch vehicles, cost per flight, safety parameters, etc. But it is mostly due to low demand and high operating costs that many aerospace companies have shied from entering into the space tourism company.

So far it has been seen that only rich people such as Dennis Tito, Mark Shuttleworth, etc. have been able to visit space after paying huge amount of money. It was reported that, Dennis Tito had to pay $20 million to go to the International Space Station (ISS) after rigorous training, where he had spent his time photographing the earth.[3] This shows that space travel is not much suitable for an ordinary man with a limited budget, and not everyone's cup of tea.

Since space tourists visiting space stations would not be much feasible and expensive, there have been many options for an enthusiastic space tourist, namely, orbital space flights, where the prospective tourists would space stations at an altitude of 200km and at a speed of approximately 30,000 km.ph, another option is sub-orbital space flight which has been currently operational by companies such as Virgin Galactic, and would be probably be one

[3] Steven Freeland, "Fly Me to the Moon: How Will International Law Cope with Commercial Space Tourism?", *Melbourne Journal of International Law,* vol. 11, (2010): 7-8.

of the most popular alternatives for space travel. Here, the passengers would have to board a spacecraft which would shut down its engines after reaching the maximum altitude of no more than 200 km and the passengers would be able to experience weightlessness and gravity.[4]

For many aerospace companies these options might be viable because of their short period of flight time, but in reality, a space tourist might want for a longer space flight, and probably in the near future, the moon. But then the fare would be an astonishing amount of figures for the people to pay just to go to the moon.

Given the nature of spaceflight options such as sub-orbital flights for tourists, would not necessarily require spacecraft but specially designed aircrafts too, therefore it would be very much evident that both air and space law would come into picture. Also, there are many problems which might arise during course of time since space law is not much regulated till a certain extent.

One of the main problems, are the limits of airspace and outer space. Though it is commonly seen that the area above the altitude of 110km[5] comes under the ambit of outer space, there are many disagreements regarding the limits laid. Where some have supported the agreement to make the boundary flexible, so as to limit the boundary according to the purpose of activity of the space vehicle, others have stood firm to the limit of 84 km, but in fact

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4 *Ibid*, pp. 9.

5 Stephan Hobe, "Legal Aspects of Space Tourism", *Nebraska Law Review*, vol. 86, no. 2 (2007): 441.

many artificial satellites orbit around the earth much higher (at an altitude of 95 km) than the Karman boundary (which is of 84 km).

Again with reference to companies such as Virgin Galactic, which operate aircrafts for sub-orbital flights, air law would come into application for its registration as per the rules of the national aviation authority, but problem would arise with regard to the spacecraft which is attached to the mother ship or aircraft, as to whether it is an aircraft being capable of registration.

Also another problem emerges if the spacecraft detaches itself from the mother ship whether it can be capable of being an aircraft or a part of the aircraft after its detachment.[6] As per the Chicago Convention of the International Civil Aviation Authority, an 'Aircraft' is defined as "machines which derive support from the reactions of air".[7] Hence, technically, these space vehicles would be called as an aircraft until its separation from the mother ship, and after that, it would no longer be called as an aircraft and cease to be under the purview of air law, since at an altitude of over 100km, the atmosphere is less dense and the air would be thin.

The status of space tourists are nowhere mentioned in the Outer Space Treaty or any other treaties, but cannot be considered as astronauts since they are supposedly 'envoys of mankind'.[8] But they can be presumed as under the purview of other personnel.

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6 *Ibid*, pp. 443.

7 *Ibid*.

8 *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and other Celestial Bodies* 1967, Article V.

This would also enable them to get help in case of any distress under the terms of the Rescue Agreement.[9]

REMOTE SENSING

Remote sensing can be defined as the process of extracting information from an object via a sensor in space.

It is dependent on the technology of making use of emission, reflection and diffraction of electromagnetic waves by the sensory objects.[10] Over the years, remote sensing has been used for varied purposes such as tracking the spread of forest fires, destruction of archaeological places in Syria, melting of glaciers, rate of deforestation, etc. Satellites orbiting around the earth have enabled meteorologists to predict better weather forecasts. It has also improved oceanography to locate underwater obstacles which would create problems for commercial shipping.[11]

For remote sensing, it is only in the case of a few spacefaring countries that there are laws with regard to the necessities of remote sensing. Though the Outer State Treaty states that the outer space is free from any state's sovereignty, it also states that state responsibility comes into picture when carrying its own space activities.[12] In 1986, the UN had enacted its principles on remote

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9 *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space* 1968, Article II.

10 Atsuyo Ito, *Legal Aspects of Satellite Remote Sensing* (Leiden, The Netherlands: Martinus Nijhoff Publishers, 2011), 4.

11 I. H. Ph. Diederiks-Verschoor and V. Kopal, *An Introduction to Space Law* (New Delhi: Wolters Kluwer Pvt. Ltd., 2010), 70.

12 *Supra* note 9, Article I & VI.

sensing, where it is stated that 'developments in the field of remote sensing is to be done for the benefits of all countries regardless of their rate of social, scientific, economic technological development'.[13] This creates a problem since it implies that there are no restrictions on what region of the earth, its geography, or its objects are viewed. The state whose regions are being remotely sensed by the satellites of other state(s), have in fact no right to restrict such activities, because of the virtue of lack of sovereignty in the domain of outer space as provided in the Outer Space Treaty. But Principle XII provides for the right of the sensed state to gain the sensed data from the sensing state without any bias and discrimination.

Also, these principles are silent with regard to the intellectual property rights during the generation of data from the satellites.[14] The provisions of the Liability Convention are also vague when it comes to the limits of responsibility upon the different types of space remote sensing activities.

Canada's legislation on remote sensing, namely, the Remote Sensing Space Systems Act is one such legislation in the world where the government can regulate remote sensing activities[15]

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[13] *UN Principles Relating to Remote Sensing of the Earth from Outer Space*, Principle II.

[14] Atsuyo Ito, "Improvement to the Legal Regime for the Effective Use of Satellite Remote Sensing Data for Disaster Management and Protection of the Environment", *Journal of Space Law*, vol. 34, no. 1 (2008): 50.

[15] Thomas Gillon, "Regulating Remote Sensing Space Systems in Canada – New Legislation for a New Era", *Journal of Space Law*, vol. 34, no. 1 (2008): 23-26.

owned and operated by Canadians or a Canadian company, till a certain extent.

Brazil is one of the leading spacefaring countries of the world, and has developed its space operations over time. Brazil's governmental agency, National Institute for Space Research (INPE), has been carrying out vast research in the field of space since many years, and has been credited for launching many satellites. In 1971, when the country was under military rule, the President had created the Brazilian Commission for Space Activities (COBAE) which was tasked to aid and advise the President regarding space related matters.[16] It is to be noted that till the end of military rule, remote sensing was more or less unregulated. After the transition to democracy, in 1997, Decree No. 2278/97 was enacted which regulated remote sensing and other forms of aerial surveys. The decree defines remote sensing as 'aerial photography' by satellites. It also mandates for private companies using remote sensing, to take permission from the Ministry of Defence. But the decree is often ignored by the private companies.[17]

Germany has a legislation specifically designed for the requirements of remote sensing, i.e. the Satellite Data Security Act, 2007 (SatDSiG). Section 1 of the Act underlines the scope of this

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[16] Hilcéa Santos Ferreira and Gilberto Câmara, "Current Status and Recent Developments in Brazilian Remote Sensing Law", *Journal of Space Law*, vol. 34, no. 1 (2008): 13.

[17] *Ibid*, pp. 14-15.

Act, i.e. operating high-grade remote sensing systems, its data generated by German nationals, or companies based in Germany.[18] This Act has greatly helped many German space companies to convert many current space applications to commercially available applications in the market. The Act also mandates operators of high-grade remote sensing systems to gain license from the Federal Office of Economics and Export Control (BAFA), but excuses military and other governmental agencies (such as intelligence services) to obtain such licenses.

INSURANCE

It is a commonly known fact that performing space operations is extremely hazardous and risky. At the same time a lot of capital is being invested in such operations such as launching space shuttles, satellites and other space objects. But there has been very less application of insurance schemes with respect to space activities. The insurance providers or companies often shy away from covering such activities.

Though there are some insurance companies that provide insurance cover, these cover only certain aspects such as pre-launch mishaps.[19] This is because that there is a very high probability for mishaps, and preparing a space operation is often very expensive, sometimes almost reaching up to $1 billion. The mishaps can happen in different stages during a normal launch of a space

[18] *Satellitendatensicherheitsgesetz* 2007 (Sat DSiG), Section I.
[19] *Supra* note 12, p. 113.

object, such as during pre-launch, post-separation phase, and even during its normal orbital phase during the course of its operation. It is because of this that most of the insurance companies cover risks post its launch since most of the failures happen during the pre-launching stage.[20]

In the end of the 1990s, the maximum amount which could be claimed was $ 300 million. Where, 31% of the total share was accounted to the USA, 12% to Italy, and Australia, Japan, Sweden at 12%. It is to be noted that after the Apollo I fire and the explosion of the space shuttle Challenger, many settlements were made after suits were filed, where the US Federal Government shared the cost of compensation.[21]

The risks which are to be covered by the insurance provider can be added or modified by the space operator when the contract terms are being drafted. One problem which insurance companies face while insuring space objects, is the issue of age of the object. As time passes by, some functions of a space object may falter due to age. This forces the insurance companies to look upon the quality aspects as well of the space operator so as to lower their risks of some uncertain event.

But astronauts cannot have the luxury to dream of being insured when going for a mission. It was reportedly said that astronauts

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[20] http://www.casact.org/pubs/forum/00fforum/00ff047.pdf (accessed December 15, 2015). http://www.casact.org/pubs/forum/00fforum/00ff047.pdf

[21] *Supra* note 12, p. 117.

starting from the Apollo 11 mission, had to sign so called 'insurance covers'. These were in fact signed postal covers, which were signed by the astronauts themselves, so that in the event of their death, they could get their claims based on the postal covers which were stamped, and then sent to someone in the form of parcels dated as per the mission date.[22] This was an ingenious way of giving a small amount of relief to their legal heirs in the occurrence of an uncertain event, since the insurance companies were hesitant to cover these astronauts' hazardous and uncertain mission.

All these matters highlight the fact that there needs to be serious development in the legal regime for the possible development of insurance in the domain of space.

SATELLITE COMMUNICATION SYSTEMS

Communication based satellites have been considered as one of the most pivotal aspects of space development, which has been existent ever since the exploration of space in the 1960s. This was important because even before the launch of any space vehicle or manned mission, it was important that communication between the space object and the base station back at earth was present and functional for their proper operability.

This development also provided a boost to the field of telecommunications, which was one of the most popular

[22] http://www.picturetrail.com/sfx/album/view/9097559 (accessed December 15, 2015). http://www.picturetrail.com/sfx/album/view/9097559

developments during that time till the present day. Therefore due to its fast pace of development, this field too required revamp of certain international laws.

One such problem was the usage of Geo-Stationary Orbit (GSO) for satellite communications. The Malagaa – Torremolinos Convention of 1973 also emphasised the fact that radio frequencies and the GSO were limited resources, and required its efficient usage by the countries with respect to the ever arising demand for different radio frequencies for varied purposes.[23]

As mentioned before in the topic of insurance, conducting space operations is a very risky business, and communications satellites are not excused from this problem. There are many inactive satellites and other space objects which are no longer functional in outer space that have formed what is well known as 'space debris'. Removal of space debris is not an easy task, and these cannot be legally identified since the terms 'space objects' and 'space debris' are not defined under the terms of the Outer Space Treaty.

SATELLITE DIRECT BROADCASTING

Satellite Direct Broadcasting, or more popularly known as Direct Broadcasting by Satellite (DBS), where satellites are used to broadcast television signals in earth. This development has brought tremendous development for better television signals all around the

[23] Hanneke Louise Van Traa-Engelman, *Commercial Utilisation of Outer Space: Law and Practice*, (Dordrecht, The Netherlands: Martinus Nijhoff Publishers, 1993), 89-90.

world, which earlier was not possible because of the lack of satellites for broadcasting these signals.

But there are many roadblocks which might be present such as whether a State has the right to broadcast television signals into another state without the consent of the latter, also the reception of these signals create a problem since they are under governmental control.[24]

To remove these hindrances, there has been consensus across many countries to establish an international Direct Television Broadcasting by Satellite Service (DTBS) on the principles of international law.[25]

AIR NAVIGATION CONTROL VIA SATELLITES

Airplanes are already benefitting from the use of navigation systems such as GPS, which have helped pilots as an aid for a better alternative for geographical navigation during flights. Though, air traffic controllers also provide help to pilots for navigation issues, due to heavy and increasing air traffic, they are often overburdened to help each aircraft onward to its destination.

In 1983, the Future Air Navigation System Committee (FANSC) was set up to make use of the airspace in an efficient and tactful way.[26]

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[24] James Edwin Bailey III, "Current and Future Legal Uses of Direct Broadcast Satellites in International Law", *Louisiana Law Review*, vol. 45, no. 3, (1985): 701-702.

[25] *Supra* note 12, p. 58.

[26] *Ibid*, p. 67.

It is now known that there are conflicting terms between air and space laws. While air law respects the sovereign rights of each state for its airspace, space law treats the outer space beyond any jurisdiction of any state. Also problems would arise if regional air traffic agencies are established, as to which state/regional law would be followed for the newly set up agency.[27]

Also the GPS and GLONASS (Russia) navigation systems were created to meet the needs of military requirements, and since they are now popular among many aircrafts, they need to be seriously considered for their modification.

APPLICABILITY OF INTELLECTUAL PROPERTY RIGHTS (IPR) IN SPACE

The advent of new innovations in the domain of space has made it imminent to protect IPR for new developments and feats in the field of space. As more and more space based activities are starting to get privatised and commercialised, the role of IPR is getting more and more important. It is also because of the fact that there is mutual cooperation in almost any space activity, private enterprises feel it necessary to protect some of their new innovations.

As new and new lucrative space ventures such as space tourism are gaining momentum, the usage of new and advanced technology

[27] *Ibid*, p. 68.

has become pivotal and thus requiring patent protection (for instance the state-of-the-art aircrafts of Virgin Galactic).[28]

Though many international IPR conventions such as the Paris Convention for the Protection of Industrial Property do not explicitly provide for the protection of IPR in the field of space, they do ensure the protection of patent rights of each member state in an independent manner. This forbids a member state to grant a patent which has already been granted by another member state for that same innovation.[29]

The WIPO Copyright Treaty provides for computer equipment or programs, databases which are of unique nature.[30] Since computers and software programs are extensively used in space vehicles and objects, this treaty's terms indirectly implies protection of IPR for space applications.

But from the above, it can be inferred that since national IPR laws can be applied within the territorial extent, they cannot be enforced in outer space. This in turn makes it obvious that only international IPR conventions and treaties can find some amount of applicability since they are more or less redundant and rudimentary in nature when it comes to the proper enforcement of IPR in the field of law.

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[28] http://www.wipo.int/export/sites/www/patent-law/en/developments/pdf/ip_space.pdf (accessed December 17, 2015). http://www.wipo.int/export/sites/www/patent-law/en/developments/pdf/ip_space.pdf

[29] *Ibid*.

[30] *Ibid*.

In matter to extra-territorial jurisdiction, the USA is the only country which can enforce its IPR rights of patents of the country used in outer space as provided in Section 1 of 35 United States Code.[31]

COMMERCIAL SPACE ACTIVITIES IN INDIA

In India, Antrix Corporation which is under the aegis of Indian Space Research Organisation (ISRO), manages commercial space launch activities in order to decrease the burden on the government's finance. Antrix Corporation provides for services such as, providing communication transponders, marketing components of satellite systems, to provide launch facilities, training personnel for space programs and software development.[32]

Since 2000, India has been providing services to other nations for space launch services.[33] Commercial satellites of South Korea (Kitsat), Germany (Tubsat and BIRD), Belgium (PROBA), Israel (TECSAR), Canada (CAN-X2), etc.[34] Recently six satellites of Singapore, one of them, TeLEOS, have been launched by the Antrix Corporation and ST Electronics (Singapore).[35] Even though India has one of the most important space research and

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31 35 U.S.C., Section I.

32 Shashi Sharma, "Space Program and Business in India – Legal Perspectives" in, *Space Law: Legal Contours, ed. P. Solomon Vinay Kumar* (Hyderabad, India: The Icfai University Press, 2009), 28.

33 Ranjana Kaul and Ram S. Jakhu, "Regulation of Space Activities in India" in, *National Regulation of Space* Activities (Springer, 2010), 165.

34 *Supra* note 33, p. 29.

35 http://www.isro.gov.in/pslv-c29-teleos-1-mission (accessed March 8, 2016). http://www.isro.gov.in/pslv-c29-teleos-1-mission

development organisations and bodies, and operators in the world in the elite space club, there is a need for a legislation addressing the issues of commercial activities with regard to space.

There have been attempts to study the feasibility of a model commercial space legislation in the country. In 2005, one such attempt was done by ISRO in collaboration with the National Law School University of India, Bangalore.[36] The legislation could address the need for regulating licenses to private space launchers, which could be done by creating a governmental body to be tasked upon such responsibilities. It could also include with regard to the cause of action and any future liabilities which may arise during the course of such commercial space activities.

By this, private space operators would be assured of having their resentments cleared during investing in the space industry of India.

LEGAL ISSUES

It is clear that complete reliance on international space treaties would not be enough for countries or private enterprises engaging in commercial space activities. It would be vital for countries to enact new laws and legislations to enable seamless business in the space industry. It would also be obvious for the international community to frame a treaty to facilitate private enterprises'

[36] K.R. Sridhara Murthi, V. Gopalakrishnan and Partha Sarathi Datta, "Legal Environment for Space Activities" in, *Space Law: Legal Contours, ed. P. Solomon Vinay Kumar* (Hyderabad, India: The Icfai University Press, 2009), 12.

participation in the space industry so that the commercial prospects of space can be exploited in an accepted manner.

Companies engaging in research activities in Moon or celestial bodies would face difficulties in conducting experiments and research since Article 6 of the Moon Treaty does not take into account of property rights of private enterprises, rather it confers such rights to 'State parties'.[37]

Furthermore, with regard to laws with regard to transportation, conflicts may arise as to the issue of applicability of air or space law. Space industry being an expensive avenue till date will require clearly defined laws which would help to clear matters regarding various issues of conflicting nature. Some experts have pressed the need for application of air law for the requirements of private space operators, while others have asserted the application of space law instead. There is also the possibility of taking into account of four alternatives, that is, suborbital vehicles remain unregulated; secondly, that new bi-lateral or international agreements are made to regulate commercial space activities and demarcate boundaries between air and space law; thirdly, creation of a new international organisation to regulate such activities, or lastly, that the International Civil Aviation Authority (ICAO)

[37] *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies* 1979, Article VI.

makes necessary amendments to regulate commercial space activities using aerospace vehicles.[38]

If air law is to be applied, there needs to be changes done in accordance so that aerospace vehicles can come under the ambit of aircraft when they fly in airspace which is used by other civil aircraft.

With regards to liability arising due to accidents, there have been proposals to apply tort law if there are no relevant legislations regarding such accidents in outer space. In those circumstances, when vicarious liability is applied, the private space operators or enterprises can be held responsible if one of their pilots or crew member is negligent, and that the negligent act occurs during the course of employment.[39]

CONCLUSION

There have been so many commerce space applications that it is hard to enumerate them. Indeed, development in space has changed the pace of technological advancement in the planet, but the issues have to be kept in mind when they are being used. One of the main problems that many space based innovations face is their lack of mention or scope under international law or national

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[38] Paul S. Dempsey and Michael C. Mineiro, "ICAO's Legal Authority to Regulate Aerospace Vehicles" in, *Space Law: Legal Contours, ed. P. Solomon Vinay Kumar* (Hyderabad, India: The Icfai University Press, 2009), 97.

[39] Michael C. Mineiro, "Assessing the Risks: Tort Liability and Risk Management in the Event of a Commercial Human Space Flight Vehicle Accident" in, *Space Law: Legal Contours, ed. P. Solomon Vinay Kumar* (Hyderabad, India: The Icfai University Press, 2009), 58-59.

laws of spacefaring states for that matter. Since these innovations are not being recognised legally, in case litigation issues arise, judicial officers are at a loss to take the right stance.

India and other countries which are increasing their presence in space and using it for the respective nations' development are in a dire need to enact legislations so as to enable a fluid mechanism for private space enterprises to take part in the space industry. Though attempts to commercialise space is welcoming and a sign of fading away of different nations' interests, it should be limited to an extent that no harm should be resorted to the celestial bodies. For instance, though mining rich asteroids for minerals is very tempting this could prove to be disastrous if it enters earth's orbit and its' gravitational pull!

The fact should be respected that the space is no one's territory. It should be used for everyone's benefit and development. It should be protected from any attempts of militarisation and exploitation. Such attempts and accumulation of space debris which results in pollution, reminds mankind that space is another destination which humanity has deeply exploited and used for selfish interests, as with the case of this planet.

The space cannot be another avenue where humans have failed to maintain and conserve the environmental stability, as is currently happening in planet Earth. There needs to be a boundary between use and exploitation. Over exploiting resources of space and its

celestial bodies would be a detrimental factor for life on earth and its mere existence in the near future.

Nevertheless, it would be practicable to assume that space law would revolutionize commerce and space travel as had happened with the case after the invention of airplane by the Wright brothers. In the coming years as technology advances which would provide cheaper alternatives, it would be possible for a common man in the coming years, if not, in the near future.

SHORT NOTES

MINING THE FINAL FRONTIER: THE NEED FOR AN INTERNATIONAL LEGAL FRAMEWORK

Bhagirath Ashiya and Naman Awasthi[*]

INTRODUCTION

The reality of human beings reaching to the outer space was crystallized by the Soviet Union in the year 1957 by launching the first artificial satellite, Sputnik I. Since then, there is no looking back for mankind as the great words of Neil Armstrong reflect "*That's one small step for man, one giant leap for mankind.*"[1] Not only the prospects of further exploration of outer space opened, but also the opportunities for commercial exploitation. The concept of private enterprise exploiting space to build and grow thriving business ventures is nothing new. It has been around since 1965 when the first commercial satellite, called Early Bird, went into regular revenue service. Since then, the private sector has continued to expand its involvement in space activities. Scientific and industrial advancement, commercial profit and social benefit are the reasons, which push for the exploitation of outer space.

The potential for future commercial profit from developing space will also depend on another imminent space activity-space mining. The minable resources located on the Moon and in near-Earth asteroids are both immense and valuable. These extra-terrestrial resources are probably necessary to build a comprehensive space

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[1] First Manned Moon Landing Mission in July 21, 1969.

infrastructure: it simply costs too much to blast industrial materials in mass out of Earth's gravity.[2] Great social benefit, such as hazardous waste problems and solutions to energy, accrued counter the argument strict commerciality as the objective of space exploration. Hence, an appropriate level playing field will be provided by a legal regime for commercial development of outer space.

Private commercial space enterprise is a more egalitarian model than national space agencies for exploring and developing space too. Private commerce has enabled undeveloped countries to compete with the major space-faring nations rather than depend on them. Also, while national space agencies serve the interests of their own citizenry, private commercial space enterprise can serve their shareholders, regardless of citizenry.[3]

The preamble to the ***"Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies"***[4] (also known as Outer Space Treaty) narrates a variety of concerns as lying behind the decision to agree on the treaty. These include the general common interest in space, in its use for peaceful purposes, that the use of space should benefit all and the need for mutual understanding and co-operation. Co-operation has, however, been

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2 Zack Meyer, "Private Commercialization of Space in an International Regime: A Proposal for a Space District 2010," *Northwestern Journal of International Law and Business*, vol. 30, Winter Issue 2010: 245.

3 *Ibid;* p.248.

4 Effective as on October 10, 1967.

patchy and encouraged by economic and financial considerations are not to be despised.[5] That the exploration and use of the outer space should be 'only for the betterment of mankind and to the benefit of states irrespective of the stage their economic or scientific development'[6] appeared in United Nations General Assembly Resolution[7] and the 1963 Declaration of Space Principle. The latter declaration further declares that the exploration and use of outer space shall be carried on for the benefits and the interests of all mankind.

The implication of such a statement in the resolution and declaration are developing as time goes on. The declaration, in accordance with Article 1 of OST, adds a sentence: 'Particular account must be taken of the needs of developing countries'. The declaration therefore exhorts space active states to co-operate with the developing countries in most effective manner possible including through governmental and non- governmental, commercial and non commercial co operation. Such co-operation should be aimed at promoting the outer space and science and technology together with its application.[8] Collectively, the Outer Space Treaty and Moon Treaty promote a "*legal regime seemingly"* inhospitable to the commercialization of outer space. However, the two treaties do not prohibit the commercialization of

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5 Francis Lyall and Paul B. Larsen, Space Law: A Treatise, Ashgate Publishing Limited (Burlington, Vermont, USA), p.58.

6 *Article I* of The Outer Space Treaty, (Effective in 1967).

7 UNGA Res. 1721 of 1961

8 *supra* note 5, p. 63.

outer space out rightly. Rather, the two treaties resist private ownership and appropriation, and even that resistance is not absolute. Ultimately, as will soon become apparent, the two treaties do permit the private ownership and appropriation necessary to commercialize space "*so long as international interests are given their due consideration."*[9]

THE UNITED STATES AND THE LEGALITY OF ASTEROID MINING

The United States has legalized asteroid mining through the US Commercial Space Launch Competitiveness Act[10] which states that a United States citizen can commercially engage in asteroid mining with certain property rights in accordance with the international obligations[11] of the United States. The primary question that has arisen is the whether the Act is in consonance with the Outer Space treaty. The treaty under Article I states that *"the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind."*[12] Therefore when the Act states that it is in consonance with international obligations, it contradicts the international obligations under the Outer Space Treaty. Article I and II of the Treaty clearly prohibit any form of claims of

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9 *Ibid*.

10 https://www.congress.gov/bill/114th-congress/house-bill/2262/text (accessed December 17, 2015). https://www.congress.gov/bill/114th-congress/house-bill/2262/text

11 US Commercial Space Launch Competitiveness Act (hereinafter U.S Act)

12 *supra* note 6.

sovereignty and declares that the '*use of outer space .....shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development'.*

It has been argued that the Act only provides for U.S nationals to extract space resources rather than indulge in any form of national exploitation.[13] The distinguishment between the sovereign and its citizens to secure space resources creates a fallacy which does not settle the continuing conflict of commercializing the final frontier. This argument does not hold good when the international obligations of the United States do not grant the sovereign, the powers to exploit space resources, then the devolution of such property rights upon the citizens is not consonance with international law. Private ownership of space resources does not fulfill the requirements of securing the interests of the world at large, resulting in sovereign disputes arising between different nationalities of the private parties carrying out space mining.

The interpretation of the Outer Space Treaty states that, it prohibits appropriation of the Moon and Celestial Bodies[14] but permits extraction of resources has been contended on multiple grounds. The United States has interpreted Article I of the Outer Space treaty to include exploitation of space resources relying on the

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[13] http://opiniojuris.org/2015/11/25/international-law-does-not-prohibit-commercial-asteroid-mining-nor-should-it/ (accessed on December 17, 2015). http://opiniojuris.org/2015/11/25/international-law-does-not-prohibit-commercial-asteroid-mining-nor-should-it/

[14] *supra* note 6.

evolving state practice.[15] The primary problem is that though extraction of resources is not prohibited, what is prohibited is the ultimate use of the resources extracted, which as per the Outer Space treaty *'shall'* be for the benefit of all countries. Therefore, any strained interpretation of Article 1 of the Outer Space would not permit commercial exploitation for profit. In a hypothetical scenario, whereby rare earth metals are monopolized by those first securing presence over the asteroid, such acts would also be contrary to the objective of subjecting exploitation of space for the benefit of all countries.

The developed world has remained largely averse to the ratification of the Moon Treaty considering the developing world having acceded to the treaty.[16] The opposition of the developed world lies in the creation of an international mechanism for the exploitation of outer space resources.[17] Therefore, similar to the creation of a regulatory authority in the case of sea mining[18], asteroid mining should also be subjected to regulation rather than resulting in fissures in an international consensus through the

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[15] https://www.gpo.gov/fdsys/pkg/CRPT-114hrpt153/html/CRPT-114hrpt153.htm (accesses on December 18, 2015). https://www.gpo.gov/fdsys/pkg/CRPT-114hrpt153/html/CRPT-114hrpt153.htm

[16] United Nations Treaty Series, Vol. 1363, https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXIV-2&chapter=24&lang=en (accessed on December 19, 2015). https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXIV-2&chapter=24&lang=en

[17] Mark Orlove, "Spaced Out: The Third World looks for a way in to Outer Space", *4 Conn. J. Int'l L. 597* ,vol. 4 No.3, 1988-1989, p. 608-609.

[18] *Article 151* of United Nations Convention on the Law of Seas, 1973.

creation of unilateral domestic laws legalizing asteroid mining. Even though the United States has not ratified the Moon treaty[19], the obligations concerning the common heritage of mankind can be applied as a customary principle of international law. Unless and until the international space law regime catches up with the changing times, differing interpretations to justify the acts of a nation state would render commercial exploitation of resources a futile activity mired in sovereign disputes.

[19] The Agreement Governing the Activities of States on the Moon and other Celestial Bodies, 1979. (Effective in 1984)

COLONIZING THE COSMOS: *A DOUBLE EDGED SWORD THAT IS THE APOLLO LUNAR LANDING LEGACY BILL, 2013*

Mr. Kalrav Mehrotra[*]

INTRODUCTION

The sci-fi movies had it right, when they projected that men would someday be living on the Moon. While they of course said that men would be living on Moon together, not as a set of people belonging to any particular nation, the beginning however, seems to be a little different. With the proposal of a bill in the House of Representatives and the Senate regarding the setting up of a historical park on the Moon as a testimony to the American achievement of sending people to the Moon, a huge debate of a political, legal and philosophical nature has begun. This essay does not focus on where the bill failed or whether it violated any international agreement, if any. This essay offers a practical approach and comparative critique of this bill, which might be legally and philosophically justified but a moral and political disaster if implemented.

UNDERSTANDING THE APOLLO LUNAR LANDING LEGACY BILL, 2013

The Apollo Lunar Landing Legacy Bill, 2013 was presented before the House of Representatives in the 113th Congress Session by Ms. Edwards and Ms. Edice Bernie Johnson.

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The clear fold objective of this act was to establish the 'Apollo Lunar Landing Sites National Historical Park' on the Moon and for other purposes. The same is expressly explained under Section 2 of the bill[1]. Section 2, which talks about 'findings', or basically an account for bringing about this bill, says that the Apollo missions have been the greatest singular missions in the history of mankind, for the United States has been the only country to send its astronauts to Moon. And in lieu of the same, it is necessary to preserve the posterity of the States on the Moon as a reflection to the public understanding, and a testimony to the American power.

Moreover, the act says that with the growing number of commercial enterprises and foreign nations gaining the ability to access the Moon, it becomes necessary to preserve the American historical objects on the Moon which were left back by the Astronauts to mark their presence. The act lays down threefold purposes of the bill. These are basically to preserve and protect for the benefit of the future generations the nationally significant historic sites. It secondly says that the bill shall preserve and protect for scientific inquiry the artifacts[2] described further in this act. Lastly, it says that the bill is required to preserve public understanding[3].

The act defines the term Apollo lunar landing sites as those areas, where the astronauts or instruments relating to the Apollo missions

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1 Apollo Lunar Landing Legacy Bill, 2013
2 Section 5(b)
3 Section 3

between 1969 and 1972, touched the lunar surface. It moreover says vide Section 8[4] that one year later, after the building of the historical park on the Moon, the same is to be considered a UNESCO heritage site.

LOCKEAN IDEA AND HIS JUSTIFICATION FOR COLONISATION

The idea attached with the conviction of common property has never been up for grabs or in fact seemed as persuasive, as it is today. When John Locke, the great British political philosopher, in his Second Treatise of Government (1690), mentioned that men in general, were bestowed with the world in common and reason along with it, to make use of the same to his advantage and convenience, he deciphered the same to imply the fact that any man who used the labour of his body, and the work of his hands to appropriate an un-owned land, he was entitled solely to the fruits of the same[5]. While his idea was to protect the right to ownership of an individual, the same idea seems perfectly fine when used in context of a country, spending its money and adding labour to an unowned piece of land to make it its own. This realism, therefore not only attaches legal rights over a Moon, but also makes sure that disputes challenging the future territorial of a country on Moon can be amicably settled as the property would have rights and liability arising out of it.

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4 *Supra* note 2

5 JOHN LOCKE, SECOND TREATISE OF GOVERNMENT Chapter V, 1690.

Moreover, this historic national park would not only be a testimony to the development in general of mankind, but also a baring truth that life on Moon, would not only be a dream, but also stark reality.

WILL HISTORY REPEAT ITSELF?

Perhaps the great writer, Fukoyama got it incorrect when he said that the history had ended[6]. In fact, the bill is a rewriting of a new history, which might dangerously copy the old one.

While one might seem to think of this bill, which was did not gain the Presidential assent as an act of building sandcastles in the air, it actually observes the same pattern as that of early colonization by the European countries. The early colonizing powers (the much more industrially civilized nations) went around the world looking for land, and as soon as they laid their eyes upon it, it became their colony. A brilliant example in this regard can be that of Christopher Columbus. He landed on the American soil, and that after observing that no other country had been their first, made it their own territory. In fact wars amongst the civilized countries to claim a previously undiscovered terrain is not unheard of. This in fact was the root cause of colonization.

Applying a similar analogy, it is apparent that the States, by way of its power managed to get its astronauts on the Moon, and therefore is claiming to have a hold over the same. Now if some other country, manages to therefore land its Astronauts on the surface of

6 Francis Fukuyama, The End Of History? 2 (1989).

Moon, it too shall seek to control that part of the Moon as a tribute to its own historical achievement, thus ultimately colonizing the Moon. This in turn, not only gives the superpowers an upper-hand in controlling external territory, but also gives them an edge over the mineral resources available on the surface of Moon. Of course, the Moon Treaty of 1960 is to be blamed partially, but then if the same is allowed to happen, repercussions could be worse not only for the developing or under-developed country who might want an equal share of the pie, but also future wars which might occur for gaining access to other undiscovered parts of the solar system.

WHAT CAN BE DONE- A UTOPIAN CONCLUSION

The only answer to this endless debate is a utopian one. While the international treaties may restrain further encroachment upon the galaxy, it might also hamper scientific development for the sake of it. Using the Moon as cornucopia will not be a solution in standing, but will serve as a temporary solution. Moon as a resource tool can be helpful wherein common objective can be achieved through collaborative efforts and expansion of scientific knowledge. Rather than having one country, monopolize the Moon for its own benefit, it should perhaps serve the humanity. Proper agreements must be devised in order to utilize the Moon in a harmonious manner. While the earth must be a place to live, Moon must be made as a standing solution for the common good of the society so that there is no dark side of the Moon.

CASE COMMENTARY ON
GEETA JETHANI AND ORS. V. AIRPORTS AUTHORITY OF INDIA

*Ms. Jyoti**

This case[1] primarily deals with deficiency in service provided by the Airports Authority of India (hereinafter called as 'AAI') and maintainability of the same under the Consumer Protection Act 1986. However as far as the damages was concerned for the said deficiency in service, the court relied on the rules laid down under Carriage by Air Act 1972.

This case arose out of an unfortunate accident took place within the premises of Indira Gandhi International Airport maintained by AAI who is also the opposite party no. 1 in the present case, on December 13th, 1999. Geeta Jethani, the complainant in the present case was travelling from Dubai to New Delhi with her 7 year old daughter, her father and her brother to attend a family wedding scheduled on December 17th 1999. An escalator was in operation in the said premises which was frequently used by the passengers. In this escalator there was a gaping hole between the comb plates and groove of the final step and the landing platform. Unfortunately the daughter and brother of the complainant got trapped. The daughter died immediately and the brother suffered some injuries. There was no staff of the airport authority who

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1 Geetha Jethani v. Airport Authority of India and Ors 2004 (3) CPJ 106 (National Consumer Disputes Redressal Commission).

could have attempted to stop or manage the escalator. An FIR was registered under Section 304A and 337 of Indian Penal Code 1860.

The complainant alleged that the airport authorities as well as the manufacturer of the escalator were guilty of deficiency in service. The former in particular failed to render immediate assistance and that the latter failed to properly maintain the said escalator. They further claimed compensation worth Rs 1,40,00,000/- along with an interest if 24% per annum for the mental harassment, Rs 6,00,000/- for the loss of business, Rs 4,00,000/- for wasted expenditure incurred by complainant in organising the trip to India for the purposes of attending a wedding which was ultimately cancelled.

AAI, the opposite party no. 1 at first objected to the jurisdiction of a consumer forum to deal with a criminal case which is already sub-judice in the court of Additional Chief Metropolitan Magistrate. Alternatively it argued that a routine check-up was conducted on the working of the said escalator around three months back and there was no defect of any sort found. It also denied being responsible to provide any services to the complainant as it was the responsibility of the airline and thus there was no question of deficiency in service. The carrier should be made liable as the carrier undertakes the responsibility of the passengers not only when they are on board but also while they are embarking or disembarking and the accident took place when the complainants were disembarking. Further the maintenance of the

escalator was the responsibility of the manufacturer i.e. OTIS by virtue of a contract. Lastly it also argued that the Consumer Protection Act 1986 is legislation enacted in addition to the Carriage by Air Act 1972 and cannot substitute the same and that the liability should be determined as per Carriage by Air Act 1972.

Manufacturer of the escalator OTIS, the opposite party 2 in the present case denied its liability on the grounds that its contract of maintenance with AAI ended prior to the occurrence of the accident and that there was no statutory duty placed on the manufacturer for the maintenance of the said escalator.

A Court of Inquiry was constituted under by the Ministry of Civil Aviation which submitted an exhaustive report explaining the causes of accident and primarily held both the airport authority as well as the manufacturer responsible for not maintaining the said escalator properly and lack of proper documentation and supervision with respect to the working of the escalator.

There were three main issues before the court. Firstly whether there was a deficiency in service. Secondly whether the complaint under the Consumer Protection Act 1986 was maintainable and third was regarding the quantum of damages.

The Commission relied on the Court of Inquiry's report which sufficiently explained with evidences both oral and documentary that the opposite party no 1 was indeed liable for deficiency in service. Though Commission accepted the non conclusive nature of the said report, it nevertheless relied on the report because it was

exhaustive and had thoroughly examined all the evidences. With regards to the objection raised by the defendant that the said suit is already *sub-judice* and should not be dealt by the consumer fora under the Consumer Protection Act 1986, the Commission held that consumer fora has to deal with both civil and criminal matters and pendency of a criminal proceeding with respect to this complaint before Additional Chief Metropolitan Magistrate does not bar the proceedings under this act. At the same time it also observed that the decision of the consumer fora with respect to deficiency in service is also not binding on the criminal proceedings.

The Commission regarding maintainability of the complaint observed that the opposite party no. 1 by virtue of the AAI Act 1994 is a statutory body and is responsible for managing the airports and provide facilities to passengers amongst other important duties. Hence by virtue of this act the opposite party no. 1 was under a statutory duty to provide the services mentioned under the act.[2] However with regards to the joint and several liability of the opposite party no 1 and opposite party no 2, the Commission decided not to make any conclusion.

The most pertinent aspect of this case is the third issue regarding the quantum of damages and the manner of calculation of the

[2] Indian Medical Association vs. V.P.Shantha & Ors. MANU/SC/0836/1995: regardless of the fact that some patients are given free medical treatment and some are charged, it comes under the ambit of CPA. Free service is also considered as ‘service’ as well as the recipient is recognized as a 'consumer' under the Act.

same. The opposite party no 1 denied its liability to pay any amount as compensation as Air India, the airline through which the complainants travelled were not made a party to this complaint. Rejecting this contention, the Commission observed that assuming the carrier was liable, it did not affect the responsibility of the airport authority to manage the airports and in particular to ensure that the said escalator was working in proper condition. This cannot be the responsibility of the carrier and thus non joinder of Air India would not defeat the claim against AAI. However for the purposes of assessing the damage the commission relied on the rules under the Carriage by Air Act 1972 which provides for the manner of calculation of damages. As per Section 4 of this act, the rules which are contained in the Second Schedule, subject to the provisions of this act, shall have the force of law in India in relation to any carriage by air to which those rules apply. As per this act, in case of death of a passenger, the carrier is liable to pay compensation equivalent to 2,50,000 Francs. Though the commission accepts that this liability is of a carrier and not of an authority which manages airport but these principles were adopted considering the fact that for embarking and disembarking a passenger is required to use the airport which is maintained by such authorities. Hence damages could be assessed on that basis. It accepted the contention of the opposite part 1 that though a high damages is claimed but the same is not substantiated with evidence. But at the same time it also observed that there cannot be strict evidence which can determine the exact amount of a human

life. Further it also observed that in the absence of any statute which can provide rules for determination of liability of airport authority, the rules provided under the Carriage by Air Act 1872 can be made applicable considering the similar nature of liability which may arise in case of death a passenger under the two categories. Such similar nature of liability cannot be traced under any other statute which provides for liability in case of death. Therefore the commission calculated a compensation amount as per Carriage by Air Act 1872 and directed the opposite party to pay a sum of 2,50,000 Francs along with an interest of 10% per annum.

This case is a unique contribution towards the setting up of a legal precedence which has led to the bringing of the liability of AAI as a service provider under the ambit of the 1986 Act of Consumer Protection.

In recent years there have been various instances wherein relief is being granted at different levels by the consumer forums to the aggrieved party for their failure to provide adequate service which includes delay in flights, providing compensation in case the baggage is lost, etc. There have been numerous instances where the matters have been handled by the State Commissions with respect to the complaints filed against airlines.[3] The cases however, are

[3] Ranjana Kaul, INDIA LIABILITY IN CONTEXT TO THE AIR NAVIGATION SERVICE PROVIDER, the International Conference on Contemporary Issues in Air Transport, Air Law & Regulation, New Delhi, India, 23-25 April 2008, P – 23, available at

required to be strictly litigated under the provisions of the 1972 Act of Carriage by Air. The said law is not used on frequent basis because of the reason that it prescribed very low levels of compensation and the procedure involved for the settlement of dispute is extremely cumbersome in nature which is related to the law of torts.[4] The legal remedy offered by the Consumer Protection Act 1986 which is in addition to those available under other laws currently in force makes the petitioners approach consumer forums on frequent basis.

Although, future is difficult to be predicted, the objective behind discussing the current judicial trends in the law of consumer protection in line with the air navigation service provider is that the mentioned judicial trend is going to have a deep impact upon the operation of section 33[5] of the Act which provides for the protection of AAI from the liability against loss or damage caused to a consumer. Though, strictly speaking, it is only airlines that are considered as consumer of air navigation made available by the AAI. The fact which remains same is that in case loss or damage is caused because of the failure air navigation service provided by the

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https://www.mcgill.ca/iasl/files/iasl/C09-Ranjana_Kaul-Liability_of_India_ANSP.pdf.

4 *Ibid.*

5 Section 33: provides immunity for the AAI, its officers and employees and the Chairperson of the Tribunal against a suit, prosecution or other legal proceeding for anything done in good faith or intended to be done in pursuance of the AAI Act, any rule or regulation made there under or for any damage sustained by any aircraft or vehicle in consequences of any defect in any airports, civil enclaves, heliports, airstrips, aeronautical communication stations or other things belonging to or under the control of the Authority.....".

airline to consumer of the air transport service, the consumer would be entitled under law to file a case for compensation against the airline as well as the AAI. It can be understood in another way as the attachment of vicarious liability is possible to be made to the air navigation signal provider through enforcement of different laws in force.

The current case is considered as a landmark judgment for two main reasons. First reason is the judgement by Supreme Court to upheld the National Consumer Disputes Redressal Commission's order to strike down section 33 of the AAI Act under which the AAI was claiming exemption from liability. It was held by the Supreme Court that since user fees from passengers was being collected by the AAI, it is required to come under the sphere of the Consumer protection Act thereby making it responsible to make the payment of compensation to the petitioners for the deficiency in the service provided which ultimately led to the death of Geetha Jethani's daughter. The second reason is relating to the award of the quantum of damages required to be paid. The Court upheld the decision of the Consumer Commission regarding the payment of compensation amount.[6] Hence, the provision[7] of law delinking the payment of compensation from the gold standard and pegs it to the currency exchange rate applicable as on the date of payment was

[6] Note on Air Carrier Liability Law in India for Ministry of Civil Aviation, 15/07/2011.

[7] Section 6 of the Carriage by Air Act, 1972.

struck down by the Court.[8] To conclude, the importance of the judgement also depends upon the fact that the Supreme Court recognized the vicarious liability of the AAI regardless of the fact that it was only one of the defendants to the suit. The suit was filed by the complainants primarily against Air India.

[8] *Id.* at 5.

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