National space legislation : future perspectives for Malaysian Space Law

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2 Malaysia, International Space Activities, and Laws

2.1. INTRODUCTION

Space activities have become global in nature. A state's engagement in international relations is definite when dealing with space affairs. Such worldwide relationships may, among other things, inspire the local and international space activities of a country and influence its space-related domestic legal framework. In general, states can be either participants or non-participants in space activities. There are various levels of participation involved in space activities, including sending personnel into outer space, launching and building satellites or other space objects, and being direct or indirect users of space technology. At this juncture, it is worth presenting an overview of the world's space activities including Malaysia's level of participation and engagement in the related activities, and the country's acceptance of outer space laws. Furthermore, this part will also concentrate on Malaysia's involvement with the world space organizations, as all these factors at certain levels may affect the future perspective of Malaysian space law.

Hence, the chapter will begin with a summary of a number of world space activities and indicate Malaysia's participation in such activities as well as the level of its engagement. The discussion will then focus on international space law including its historical background, meaning and sources. Next, it will explore Malaysia's position in regard to the five outer space conventions and the international outer space principles. Finally, it ends with a discussion on Malaysia's membership of the international and regional space organizations.

2.2. WORLD SPACE ACTIVITIES

The evolution of space activities originated from the technological evolution of rocketry and a space transportation system.[1] Due to the rapid development in science and technology, outer space activities are currently among the major concerns of many states, including the developing countries. Moreover, as states have realised that space exploration is obviously a great breakthrough in human knowledge and civilization, many have taken dynamic actions

[1] For an excellent discussion on the evolution of space activities, see Matte, Nicolas Mateesco, ed. *Space Activities and Emerging International Law,* (Canada: Centre for Research of Air & Space Law, 1984), at 13.

to utilise its benefits, ranging from exploratory, experimental space operations to commercial utilisation. This section presents an overview of past, present, and future global space-related activities conducted by the space-faring nations[2] as well as developing countries.

One of the most interesting world space activities is the construction[3] of the International Space Station (ISS) which is a symbol of international cooperation in space activities among the space-faring nations. It is a collaborative project between the United States National Aeronautics and Space Administration (NASA), the Russian Federal Space Agency, Roskosmos (RKA), the Japan Aerospace Exploration Agency (JAXA), the Canadian Space Agency (CSA), and the European Space Agency (ESA). As of May 2014, it is the largest spacecraft ever built and is currently being assembled in Low Earth Orbit. The assembly of the ISS started on 20 November 1998.[4] The ISS serves primarily as a research laboratory which conducts experiments in biology, human biology, physics, astronomy and meteorology. It is funded until 2020, and may remain in operation until 2028.[5]

Concerning the exploration of Mars, it was reported that, in October 2009, NASA and ESA signed an agreement to expand their collective capabilities, resources, and expertise to explore Mars.[6] However, in the 2011 budget blueprint, the United States President Barack Obama proposed to abandon the United States astronaut programme to return to the moon by

[2] The term 'space-faring nations' refers to those capable of independently building and launching vehicles into space. In a stricter sense, it refers to those that can build, launch and recover the spaceflight missions. According to Prasad's research of 2006, the six top space-faring agencies are the National Aeronautics and Space Administration or NASA (USA), European Space Agency or ESA (Europe), CNSA (China), Japan Aerospace Exploration Agency or JAXA (Japan), Russia, and the Indian Space Research Organization or ISRO (India). However, when the United States Government ceased manned space missions in July 2011, there was a claim that the country was no longer a space-faring nation. Rivkin, David and Diana McCaffrey, "U.S. No Longer A Space-Faring Nation", *The Hill's Global Affairs Blog,* 22 February 2010, http://thehill.com/opinion/op-ed/82727-us-no-longer-a-space-faring-nation, accessed: 14 May 2014; Top Space Faring Nations, International Space Agencies, Prasad's Research, Jan 2006, http://home.att.net/~s-prasad/TSFN.htm, accessed: 17 October 2012; see also, http://en.wikipedia.org/wiki/Spacefaring; Belfiore, Michael, "International Space Dominance: 7 Nations Launching the Next Space Race", *Popular Mechanics,* 1 October 2009, http://www.popularmechanics.com/science/space/4307281, accessed: 13 May 2014.

[3] The ISS construction stages are available at, "Spacecraft: Manned: ISS: Chronology", http://www.russianspaceweb.com/iss_chronology.html, accessed: 13 May 2014.

[4] See http://en.wikipedia.org/wiki/International_Space_Station#Station_structure, accessed: 13 May 2014.

[5] Smith, Marcia, "ESA Formally Agrees to Continue ISS Through 2020", *spacepolicyonline*.com, 27 April 2011, http://www.spacepolicyonline.com/news/esa-formally-agrees-to-continue-iss-through-2020; Clark, Stephen, 'Space Station Partners Set 2028 as Certification Goal', *Spaceflight Now,* 11 March 2010, http://spaceflightnow.com/news/n1003/11station/; http://en.wikipedia.org/wiki/International_Space_Station; all accessed: 13 May 2014.

[6] India also will be a part of this international consortium for the manned mission by 2030. See http://www.space-travel.com/reports/Human_Flight_To_Mars_Will_Be_A_Global_Mission_999.html, accessed: 1 February 2010.

2020.[7] He then called on private industry to take on the role of building space vehicles to take humans to the ISS, while NASA focuses on research and development. With regard to Russia's intention to keep up with the United States in the space race, it has successfully launched Cosmos-2479, a new geostationary early warning satellite, on 30 March 2012 from Baikonur space centre. It is the last of the family of Russian satellites designed to detect missile launches around the world. On 28 July 2012, it launched Cosmos-2481, a military communications satellite, together with two Gonets-M (M-13 and M-15), civilian communications satellites.[8] The country also announced the launch of a new manned spacecraft by 2017.[9]

China is one of the space-faring nations that have developed an independent satellite navigation system. Its present Beidou-1 system, the launch of which took place from 30 October 2000 until 2 March 2007, comprises four satellites: Beidou-1A, Beidou-1B, Beidou-1C, and Beidou-1D. The system is, however, experimental and has limited coverage and application. Therefore, China plans to continue setting up Beidou-2 (Compass) navigation satellite system for global operation with a constellation of 35 satellites. As of May 2014, 16 satellites for Beidou-2 have been launched.[10] This system became operational in the China region in December 2011.[11] The system began offering services for the Asia-Pacific region in

[7] The moon is in fact expected to be a base for manned expeditions to Mars. In this situation, the White House was reported as saying that the United States would not be ready to ferry humans to the moon before 2028, since it would be too costly. Halvorson, Todd, and Bart Jansen, "President Obama to Propose Abandoning NASA's Moon Plan", *SPACE.COM,* 28 January 2010, http://www.space.com/7834-president-obama-propose-abandoning-nasa-moon-plan.html; Chang, Kenneth, "Obama Calls for End to NASA's Moon Program", *The New York Times,* 1 February 2010, http://www.nytimes.com/2010/02/02/science/02nasa.html?_r=0, both accessed: 13 May 2014.

[8] "Cosmos-2479- New Geostationary Early Warning Satellite", *Russian Strategic Nuclear Forces,* 30 March 2012, http://russianforces.org/blog/2012/03/cosmos-2479_-_the_last_geostat.shtml; and also http://www.russianspaceweb.com/oko.html#last; http://satellites.findthebest.com/, both accessed: 13 May 2014.

[9] Writers, Staff, "Russia Set to Launch Manned Spacecraft In 2017", *Space Travel,* 27 January 2010, http://www.space-travel.com/reports/Russia_Set_To_Launch_Manned_Spacecraft_In_2017_999.html, accessed: 13 May 2014.

[10] See http://en.wikipedia.org/wiki/Beidou_Navigation_Satellite_System#Global_system_.28BeiDou_Navigation_Satellite_System_or_BeiDou-2.29, accessed: 13 May 2014.

[11] "China GPS Rival Beidou Starts Offering Navigation Data", *BBC News Technology,* 27 December 2011, http://www.bbc.co.uk/news/technology-16337648, accessed: 13 May 2014.

December 2012.[12] It is planned to also offer services to global customers upon its completion in 2020.[13]

Following in China's footsteps in joining the Asian space race, India launched its first unmanned mission, Chandrayaan-1, on 22 October 2008. In 312 days, Chandrayaan-1 completed more than 3,400 orbits but was finally aborted 10 months after it launched. It met most of its scientific objectives, one of which was to find water molecules over the moon's surface.[14] The mission was seen as the 21st century Asian version of the space race between the United States and the USSR.[15] The success of Chandrayaan-1 strengthened India's claim to be a global space power. India's future project is to launch Chandrayaan-2 by 2014.[16] This is a joint effort between the Indian Space Research Organization (ISRO)[17] and Russia. The tasks of Chandrayaan-2 are to repeat some of the experiments carried out by Chandrayaan-1, and continue its uncompleted mission. India also announced its first manned space mission as it plans to send astronauts into space in 2016 with a mission cost estimated at $4.8 billion.[18]

Space tourism[19] is another attractive space activity. Currently, orbital space tourism[20] opportunities are limited and expensive, with only the Russian Space Agency providing

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[12] Xin Dingding, "China Aiming to have Its Own GPS In Place by 2012", *GPS Daily, 18 January 2010,* http://www.gpsdaily.com/reports/China_Aiming_To_Have_Its_Own_GPS_In_Place_By_2012_999.html; "China's Beidou GPS-Substitute Opens to Public in Asia", BBC News, 27 December 2012, accessed: 13 May 2014.

[13] Experts said that the Beidou system would rival the US-developed GPS, the EU's Galileo and Russia's Global Navigation Satellite System. *Id*.

[14]See http://www.moondaily.com/reports/India_To_Launch_Chandrayaan_2_By_2013_999.html e moon's surface, accessed: 1 February 2010.

[15]Writers, Staff, "India Plans Manned Space Mission in 2016", 27 January 2010, *Space Travel,* http://www.space-travel.com/reports/India_plans_manned_space_mission_in_2016_999.html, accessed: 13 May 2014.

[16] "ISRO Puts on Hold Moon Mission Chandrayaan 2", *India Today,* 15 May 2011, http://www.bharat-rakshak.com/NEWS/newsrf.php?newsid=14750, accessed: 13 May 2014.

[17] ISRO is a primary body for space research under the control of the Government of India. It is one of the leading space research organizations in the world. For more information see its official website at http://www.isro.gov.in/; and http://en.wikipedia.org/wiki/Indian_Space_Research_Organisation, both accessed: 13 May 2014.

[18] See Writers, Staff, "India Plans Manned Space Mission in 2016", *Space Travel,* 27 January 2010, http://www.space-travel.com/reports/India_plans_manned_space_mission_in_2016_999.html, accessed: 13 May 2014.

[19]Space tourism is a phenomenon of tourists paying for flights into space. See http://en.wikipedia.org/wiki/Space_tourism, accessed: 13 May 2014.

[20] Orbital space tourism occurs when a space tourist travels to space via an orbital spaceflight. It happens when a spacecraft is placed on a trajectory where it could remain in space with the tourist for at least one orbit. See http://en.wikipedia.org/wiki/Orbital_spaceflight, accessed: 13 May 2014.

transport. The price for a flight to the ISS aboard a Soyuz spacecraft is US$20 to 35 million.[21] To date, seven space tourists have flown to and from the ISS on Soyuz spacecraft through the space tourism company named Space Adventure.[22] The space tourists are as follows:[23] First, Dennis Tito, an American businessman (flight duration: 28 April - 6 May 2001); second, Mark Shuttleworth, a South African computer millionaire (flight duration: 25 April – 5 May 2002); third, Gregory Olsen, an American (flight duration: 1 – 11 October 2005); fourth, Anousheh Ansari, an Iranian American (flight duration: 18 – 29 September 2006); fifth, Charles Simonyi, a Hungarian American billionaire (flight duration: 7 – 21 April 2007, and 26 March – 8 April 2009); sixth, Richard Garriott, American British (flight duration: 12 – 23 October 2008); and, seventh, Guy Laliberte, a Canadian circus tycoon (flight duration: 30 September – 11 October 2009).

Suborbital space tourism[24], however, attracted global attention after the success of SpaceShipOne. On 4 October 2004, SpaceShipOne, designed by Burt Rutan of Scaled Composites, won the $10,000,000 Ansari X Prize. The prize was offered to the first private company that could reach and surpass an altitude of 62 miles (100km) twice within two weeks. Virgin Galactic, one of the leading space tourism companies[25] and headed by Sir Richard Branson, plans to provide sub-orbital spaceflights to convey the paying public via SpaceShipTwo (a scaled-up version of SpaceShipOne), also designed by Burt Rutan.[26] During testing, the SpaceShipTwo craft will take off from Mojave Air and Spaceport in

[21] See http://en.wikipedia.org/wiki/Space_tourism, accessed: 13 May 2014.
[22] Space Adventure is a private space tourism company that provides human space mission opportunities. It was founded in 1998 and is headquartered in Virginia, United States of America. See *id*., and http://en.wikipedia.org/wiki/Space_Adventures, accessed: 13 May 2014.
[23] Writers, Staff, "Circus Tycoon Recalls 'Amazing Ride' in Space", *Space Travel,* 13 October 2009, http://www.space-travel.com/reports/Circus_tycoon_recalls_amazing_ride_in_space_999.html; and http://en.wikipedia.org/wiki/Space_tourism; and http://en.wikipedia.org/wiki/Space_Adventures, all accessed: 13 May 2014.
[24] Suborbital space tourism occurs when a space tourist travels into space via a sub-orbital spaceflight. It happens when the spacecraft reaches space, but its trajectory intersects the atmosphere or surface of the gravitating body from which it was launched, so that it does not complete one orbital revolution. See http://en.wikipedia.org/wiki/Sub-orbital_spaceflight, accessed: 13 May 2014.
[25] Besides Virgin Galactic, there are other space tourism companies such as Space Adventure, Armadillo Aerospace, XCOR Aerospace, and EADS Astrium. See http://en.wikipedia.org/wiki/List_of_private_spaceflight_companies, accessed: 13 May 2014.
[26] SpaceShipTwo is a sub-orbital space plane for carrying space tourists developed by the Spaceship Company, a spacecraft manufacturing company formed by Burt Rutan and Sir Richard Branson in mid-2005 and jointly owned by Virgin Group and Scaled Composites. See http://www.spaceshiptwo.net/; and also http://en.wikipedia.org/wiki/The_Spaceship_Company, both accessed: 13 May 2014.

California.[27] However, Spaceport America in New Mexico will be its commercial operation launch site.[28] The spacecraft will travel to a height of 360 000 feet (109.73 km/ 68.18 miles). The spaceflights will last for two and a half hours and the passengers will experience six minutes of weightlessness. SpaceShipTwo can carry two pilots and six passengers. On 29 April 2013 the spacecraft successfully performed its powered test flight. The first paying customers are expected to fly aboard the craft in 2014.[29] The initial seat price is 200,000 dollars with a refundable deposit starting from 20,000 dollars, but the price is expected to eventually fall to 20,000 dollars. It was reported that around 500-530 people have bought tickets.[30]

Since suborbital space tourism is viewed as a money-making proposition by several companies, the infrastructure for the industry is being developed in many locations including California, Oklahoma, New Mexico, Florida, Virginia, Alaska, Wisconsin, Esrange in Sweden, and the United Arab Emirates.[31] A number of companies have also shown interest in constructing space hotels[32] including Bigelow Aerospace, Excalibur Almaz, Hilton International, and Space Island Group. Bigelow Aerospace has already launched two inflatable habitat modules, namely 'Genesis I', launched on 12 July 2006, and 'Genesis II', launched on 28 June 2007.[33] They also plan to officially launch their first commercial space

[27] The aircraft has been undergoing active testing since 2010, and has conducted 22 successful gliding flight tests as of September 2012. "Virgin Galactic Successfully Completes SpaceShipTwo Glide Flight Test and Rocket Motor Firing on the Same Day", *SpaceRef.Com,* 28 June 2012, http://www.spaceref.com/news/viewpr.html?pid=37626; David, Leonard, "Virgin Galactic's Private Spaceship Makes Safe Landing After Tense Test Flight", *Space.com,* 17 October 2011, http://www.space.com/13297-virgin-galactic-spaceshiptwo-test-flight-glitch.html, both accessed: 13 May 2014.

[28] Coppinger, Rob, "PICTURES: Virgin Galactic Unveils Dyna-Soar Style SpaceShipTwo Design and Twin-Fuselage White Knight II Configuration", *Flightglobal.com,* 23 January 2008, http://www.flightglobal.com/news/articles/pictures-virgin-galactic-unveils-dyna-soar-style-spaceshiptwo-design-and-twin-fuselage-white-knight-221031/; http://en.wikipedia.org/wiki/SpaceShipTwo#cite_note-flightglobal-unveil-9, both accessed: 13 May 2014.

[29] See Amos, Jonathan, "Sir Richard Branson's Virgin Galactic Spaceship Ignites in Flight", *BBC,* 23 April 2013, http://www.bbc.com/news/science-environment-22344398; Mayer, Steven, "Space Ship Completes 24th Test Flight in Mojave", *HispanicBusiness.com.,* 4 April 2013, http://www.hispanicbusiness.com/2013/4/4/space_ship_completes_24th_test_flight.htm, both accessed: 13 May 2014.

[30] See *id;* and http://www.virgingalactic.com/, accessed: 13 May 2014.

[31] See http://en.wikipedia.org/wiki/List_of_space_tourism_companies, accessed: 13 May 2014.

[32] Information on the possibility of constructing lunar hotel was discussed in, Hilton, Barron, "Hotels in Space", *Space Future*, http://www.spacefuture.com/archive/hotels_in _space.shtml, accessed: 13 May 2014.

[33] Keuser, Sigurd De, "Launch of Genesis I Pathfinder Ushers in a New Era of Commercial Space Development", *SpaceFellowship.com,* 15 July 2006, http://spacefellowship.com/news/art1616/launch-of-genesis-i-pathfinder-ushers-in-a-new-era-of-commercial-space-development.html; "Genesis II Successfully Launched", *BigelowAerospace.com,* 28 June 2007,

station by 2014, with portions of the station becoming available for lease as early as 2015.[34] In their business plan, published in February 2010, the company offered a price of $23 million for a 30-day orbital stay on their Bigelow habitat inclusive of transport, training and consumables.[35] The Space Island Group, on the other hand, plans to have 20,000 people on their 'space island' by 2020.[36] Among other interesting developments, a Japanese fashion designer, Eri Matsui, has designed clothing, including a wedding gown, to look best in a weightless environment.[37]

With regard to its level of involvement and participation in world space activities, Malaysia can be viewed as one of the potential active space participants and contributors. Malaysia does not yet have its own launching capability; however, as a direct contributor to space technology, Malaysia has managed to prove to the world that it is capable of building and manufacturing its own satellites, a capability regarded as a new venture area of business for Malaysia.[38] This situation, indeed, signifies that Malaysia is among the continuing direct contributors influencing and contributing to the growth and development of current world space technologies and activities. Moreover, it was evident that Malaysia had also succeeded in sending one of its citizens into outer space in 2007.[39] During this venture into outer space, the country had carried out numerous scientific researches and experiments in an outer space environment which then contributed to the development of world space scientific research.[40] Apart from those activities, the Malaysian governmental and non-governmental agencies are also verified as direct users of space technologies and applications. This is particularly the case with various space-related applications such as telecommunications, broadcasting, remote sensing, meteorology, and navigation.[41]

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http://web.archive.org/web/20080206080325/http://www.bigelowaerospace.com/news/?Genesis_II_Launched; and http://www.space.com/news/businessmonday_040524.html, all accessed: 13 May 2014.

[34] See http://bigelowaerospace.com/orbital-complex-construction.php, accessed: 13 May 2014.

[35] See http://en.wikipedia.org/wiki/Bigelow_Aerospace#cite_note-15, accessed: 13 May 2014.

[36] The Space Island Group website is available at http://www.spaceislandgroup.com/company-info.html, accessed: 13 May 2014.

[37] See Moskowitz, Clara, Staff Writer, "First Weightless Wedding Planned", *SPACE.COM*, 2 June 2009, http://www.space.com/6786-weightless-wedding-planned.html, accessed: 13 May 2014.

[38] For more information, read Chapter 1 of the thesis (1.4.5. Satellite Manufacturing and Launching).

[39] For more information, read Chapter 1 of the thesis (1.4.6. *Program Angkasawan Negara*).

[40] For more information, read Chapter 1 of the thesis (1.4.7. Scientific Research).

[41] For details, read Chapter 1 of the thesis (1.4.1. Telecommunication and Broadcasting); (1.4.2. Remote Sensing); (1.4.3. Meteorology); and (1.4.4. Navigation).

Space tourism is another potential area of space activity that is predicted to grow in Malaysia in the future. This claim is made on the basis of the fact that various efforts have been made by the Malaysian non-governmental sectors to develop numerous space tourism projects in the future.[42] This, in fact, will certainly contribute to the development of world space activities. Taking into account Malaysia's engagement with and participation in space activities in the past and the present, it can be clearly established that Malaysia is one of the Asian developing countries that has shown great interest in participating in the growth of world space activities. Such an assertion is proved by the fact that the country's participation began as early as 1960 and has continuously developed and grown over time. Thus, it is concluded that the country's level of engagement with and contribution to world space activities is quite encouraging especially since Malaysia has managed to send her own man into outer space and also manufactures space objects.

2.3. INTERNATIONAL SPACE LAW

2.3.1. The Historical Background

This section presents the historical background of international space law in the light of three related areas. They are: (1) the evolution of space law early literature; (2) the role and involvement of the United Nations; and (3) the space law institutions and social organizations. These aspects have a direct influence on the evolution and development of space law.

The first aspect is in regard to the evolution of space law's early literature. The historical evolution of space law is, indeed, closely related to the evolution of space activities.[43] It started in the late 1950s with the beginning of the space age when the Soviet Union launched the first artificial satellite, Sputnik-1[44], although there is much evidence to indicate that space

[42] For more information, read Chapter 1 of the thesis (1.3.2(b) Malaysian Institute of Aero and Space Studies (IKAM) and Space Tourism Society Malaysia Chapter (STS-MC); (1.4.8. Suborbital Space Plane); and (1.4.9. Commercial Spaceport).

[43] There are three types of evolutions in space activities: technological, economic, and policy and law. For details, see Matte, Nicolas Mateesco, ed. *Space Activities and Emerging International Law,* (Canada: Centre for Research of Air & Space Law, 1984), at 13-71.

[44] For an excellent account of various world space explorations, see Davies, J.K., *Space Exploration*, Chambers Encyclopaedic Guides Series, (Edinburgh: W & R Chambers, 1992).

law ideas originated long before then.[45] In fact, the basic concepts in the early United Nations declaration of principles were already known in the early literature. Furthermore, such ideas had already been stressed in the air law works as early as 1910 by a Belgian lawyer, Emile Laude. Laude noted that there was a need for a new law for gaseous layers and Hertzian (radio) waves.[46] Prior to this, in 1903 a Russian space pioneer, Konstantin Tsiolkovsky, had predicted human expansion in outer space via liquid fuelled-rockets.[47] In the middle of the 19th century, Jules Verne, the founding father of science fiction, caught the world's imagination with his remarkable story of a voyage to the moon which was expressed in the form of travel books published in 1865, entitled *De la Terre à la Lune* (From the Earth to the Moon).[48]

Other early air law work relating to the question of space law includes that of V.A. Zarzar's. In 1927, Zarzar mentioned the need for a separate legal regime to deal with the area beyond the upper limits of a state's sovereignty.[49] The first conscious elaboration of space law as a new branch of science was, however, conveyed by the father of space law, Vladimir Mandl[50], in his book *Das Weltraum-Recht: Ein Problem der Raumfahrt* (The Law of Outer Space: A Problem of Space-Flight), published in Czechoslovakia at his own expense in 1932.[51] In another book, *The Future*, Mandl stressed that state sovereignty should be restricted in its vertical dimension, and the areas beyond state sovereignty there be open to all.[52]

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[45] Examples of the early ideas include the question of the need to define the space law, issues of international cooperation in the use of outer space, determining the upper limit of national sovereignty, regulating the use of outer space for military purposes, regulation of space telecommunications, liability for damage caused by spaceflight, legal status of outer space, rescue and return of space objects, and many others. For details, read Doyle, Stephen E., "Concepts of Space Law before Sputnik", (1998) 40 *IISL Colloquium on the Law of Outer Space* 3.

[46] Comment s'appellera le droit qui régira la vie de 1'air? *Revue Juridique Internationale de la Locomotion Aérienne* 1910, vol.1, at 16-8, as cited in Gál, Gyula, *Space Law,* Trans. Móra, (Leiden: A.W. Sijthoff, 1969), at 23; read also Lyall, Francis and Paul B. Larsen, *Space Law: A Treatise,* (Surrey: Asgate, 2009), at 5.

[47] Diederiks-Verschoor, I.H.Ph. and V. Kopal, *An Introduction to Space Law*, 3rd Revised Edition, (The Netherlands: Kluwer Law International, 2008), at 1.

[48] Verne's other books are: *A Journey to the Center of the Earth* (1864) and *Around the World in Eighty Days (*1873), his best known classic adventure story. See Jules Gabriel Verne (1828-1905), http://www.kirjasto.sci.fi/verne.htm, accessed: 13 May 2014.

[49] *Mezhdunarodnoye publichnoye vozdushnoye pravo* (Public International Air Law) In: *Voprosy Vozdushnogo Prava* 1927, vol.1, at 89-103, as cited in Gál**,** Gyula, *supra* note 46, at 23; Lyall, Francis, *supra* note 46, at 5.

[50] V. Kopal, "Vladimir Mandl-Founder of Space Law" (1968) 11 *IISL Colloquium on the Law of Outer Space* 357-361; G. Reintanz, 'Vladimir Mandl-the Father of Space Law' (1968), *id*., at 362-365, as cited in Lyall, Francis, *supra* note 46, at 5.

[51] Mandl (1909-1940) was born in Plzen and worked as a barrister there. It was reported that, of 500 copies of his book, 25 were sold and most of the rest he presented to the *Gesellschaft für Fortschrittliche Verkehrstechnik* in Berlin. Gál**,** Gyula, *supra* note 46, at 23; see also Lyall, Francis, *supra* note 46, at 6.

[52] Lyall, Francis, *supra* note 46, at 6.

In 1933, the idea of space law was also mentioned by a Russian, E. Korovin, in his paper 'Conquest of the Stratosphere and International Law' delivered to an air law conference and published in France a year later.[53] In 1953, the first space law doctoral thesis, entitled *Luftrecht und Weltraum*, was submitted by Welf Heinrich, Prince of Hanover, to the Faculty of Law and Political Science, Georg-August University, Germany.[54] Other air law authors who contributed significantly to early literature on space law, to name a few, include J.C. Cooper,[55] A. Meyer,[56] C. Berezowski,[57] B. Cheng,[58] D. Goedhuis,[59] and E.Pepin.[60] Moreover, many other space law works were written during this pre-Sputnik age, such as *Earth Satellites and the Law* by M. Aaronson,[61] *Les Voyages Interplanétaires et le Droit* by E. Danier,[62] *The Law of Space'* by C. Horsford[63] and *International Law and Activities in Space* by W. Jenks.[64]

The idea of space law was then further developed during the Sputnik age. Many major works emerged, such as John Cobb Cooper's *The Russian Satellite – Legal and Political Problems.* This was written two weeks after the Soviet Union launched Sputnik 1 and was presented at the American Rocket Society's annual meeting on 2 December 1957. The article highlighted the possible legal and political problems that might arise from the launching of objects into outer space, such as issues of boundaries of air and outer space, the need for the United Nations to serve as a forum for international discussion on outer space-related matters, and the necessity to ensure that outer space objects were used exclusively for peaceful and

[53] La conquête de la Stratosphère et le droit international*, Revue Général De Droit International Public* (*RGDIP*) 1934, at 675-86, as cited in *id*.
[54] Jasentuliyana, Nandasiri, *International Space Law and the United Nations,* (The Hague: Kluwer Law International, 1999), at 2.
[55] High Altitude Flight and National Sovereignty*, International Law Quarterly* (*ILQ*), 1951, as cited in Gál**,** Gyula, *supra* note 46, at 24.
[56] Rechtliche Probleme des Weltraumfluges*, Zeitschrift für Luftrecht* (*ZLR*), 1953, vol.2, no.1, at 31-42, as cited in *id.*
[57] Remarks on the Limitations of Air Sovereignty, *International Law Association* (*ILA*) Space Law Rep. Dubrovnik, 1956, at 167-168, as cited in *id*.
[58] Recent Developments in Air Law, *Current Legal Problems* (*CLP*), 1956, at 208-234; International Law and High Altitude Flights: Balloons, Rockets and Man-Made Satellites, *International and Comparative Law Quarterly* (ICLQ), 1957, at 487-505, as cited in *id*.
[59] Air Law: The Limitations of Air Sovereignty, *International Law Association* (*ILA*) Space Law Rep. Dubrovnik, 1956, at 196-207, as cited in *id*.
[60] Study and Research on Legal Problems Posed by Space-Flight, *Proceedings of the Seventh IAF Congress, Rome 1956*, at 17-22, as cited in *id*.
[61] *Law Times* 1955, vol. 220, at 115-116, as cited in *id*. at 25
[62] *Revue Général de l'air* (*RGA*), 1952, vol.15, at 422-425, as cited in *id*.
[63] *Journal of British Interplanetary Society* (*JBIS*), 1955, vol.14, at 144-150, as cited in *id*.
[64] ICLQ, 1956, vol.5, at 99-114, as cited in *id*.

scientific purposes. The article also suggested the need for a treaty to resolve outer space related-problems.[65] In 1957, a Latin American author, A.A. Cocca, wrote the 250-page *Teoria del Derecho Interplanetario* (Theory of Interplanetary Law) published in Buenos Aires, and in 1961 M. Seara Vázquez published *Introducción al Derecho Internacional Cosmico* (Introduction to International Space Law) in Mexico City. Later on, American authors P.C. Jessup and H.J. Taubenfeld published their 379-page book entitled *Controls for Outer Space and the Antarctic Analogy* in New York in 1959.[66] Then in 1960, Jean Rivoire, a member of the Permanent Legal Committee of International Astronautic Federation, wrote an article on 'How to Introduce the Law into Space'.[67] Such encouraging progress continued until the new age with the appearance of other works such as W.C. Jenks's *Space Law,* published in London in 1965, and E. Fasan's *Weltraumrecht*, published in Mainz in the same year.[68] Some other excellent works include Judge Manfred Lachs's *The Law of Outer Space: An Experience in Contemporary Law-Making*, published in Leiden in 1972, and *Studies in Aerospace Law: From Competition to Cooperation* by S. Bhatt, published in New Delhi in 1974.

The second aspect is the historical background of international space law in relation to the role and involvement of the United Nations. With respect to the United Nations involvement in the evolution of space law,[69] evidence demonstrates that the direct involvement occurred just after the Soviet Union launched Sputnik 1 on 4 October 1957 and the United States launched Explorer 1 on 31 January 1958. From that point, the international community realised that it was essential to formulate international rules and regulations to govern human activities in outer space. With the launch of those satellites, the world community was concerned that such new technology might lead to the colonization of space, and the arms race might be exported to this new frontier.[70] Therefore, in the late 1950s, the United Nations

[65] Cooper, John Cobb, "The Russian Satellite - Legal and Political Problems", *Explorations in Aerospace Law,* Ed., Vlasic, Ivan A. (Montreal: McGill University Press, 1968), at 280. The article was originally published in the Journal of Air Law and Commerce 379 (1957).
[66] Gál**,** Gyula, *supra* note 46, at 26.
[67] Rivoire, Jean, "How to Introduce the Law into the Space', (1960) 2 *IISL Colloquium on the Law of Outer Space* 9.
[68] Gál**,** Gyula, *supra* note 46, at 26.
[69] For more discussion on evolution of space law, read Goldman, Nathan C., "Space Law", *Space Politics and Policy: An Evolutionary Perspective,* Ed., Sadeh, Eligar, (Dordrecht: Kluwer Academic Publishers, 2002), at 164-172.
[70] Jasentuliyana, *supra* note 54, at 22.

took a significant step, fulfilling its tasks to maintain international peace and security[71] and encourage the progressive development of international law and its codification[72] by establishing the 'Committee on the Peaceful Uses of Outer Space' (hereinafter, 'COPUOS' or 'UNCOPUOS') in order to ensure international cooperation in outer space and the development of international space law.

The establishment of COPUOS in 1958 marked the birth of the space law-making process in the United Nations. This happened shortly after the first space launch when the United States Permanent Representative to the United Nations addressed a letter to the Secretary-General[73] requesting that an item called 'Programme for International Cooperation in the Field of Outer Space' be placed on the General Assembly[74] agenda at its thirteenth session in 1958. The letter called for the establishment of a specific Committee to conduct the necessary studies and propose recommendations for the Assembly in order to ensure that outer space would be used for the benefit of all mankind.[75] As a result, the General Assembly set up an *ad hoc* COPUOS with 18 members.[76] The Committee's tasks, among others, were to report to the General Assembly on all the activities of the agencies and international bodies relating to the uses of outer space, and also to study the nature of legal problems that might arise from such activities.[77] One year later, the *ad hoc* COPUOS was made permanent with its membership increased to 24 states.[78]

The COPUOS at its second session in 1962 formed two sub-committees: (1) the Scientific and Technical Sub-Committee; and (2) the Legal Sub-Committee.[79] Prior to that, in

[71] UN Charter, San Francisco, 26 June 1945, entered into force 24 October 1945, 24 UST 2225, TIAS No. 7739, TS 993, at Art.1, para. 1.
[72] *Id.,* Art.13, para. 1(a).
[73] Secretary-General is the head of the Secretariat of the United Nations. He acts as the *de facto* spokesman and leader of the United Nations. The current Secretary-General is Ban Ki-Moon, from South Korea. See http://www.un.org/; and, http://en.wikipedia.org/wiki/Secretary-General_of_the_United_Nations, accessed: 13 May 2014.
[74] General Assembly is one of the United Nations' principal organs. It is the main deliberative assembly which is composed of all United Nations member states. It meets in regular yearly sessions under a president elected from the member states. The first session convened on 10 January 1946 in Westminster Central Hall, London. See *id*.
[75] UN Doc. A/3902 of 2 September 1958. Jasentuliyana, *supra* note 54, at 2.
[76] *Question of the Peaceful Uses of Outer Space*, UNGA Res. 1348 (XIII), 13 December 1958. See *id.*, at 23.
[77] See http://www.oosa.unvienna.org/oosa/en/COPUOS/cop_overview.html, accessed: 13 May 2014.
[78] UNGA Res. 1472 (XIV) of 12 December 1959. See *id*. For more information, read Chapter 2 of the thesis (2.4.1(a) United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS).
[79] *Report of the Committee on the Peaceful Uses of Outer Space on the Work of its First Session,* UN Doc. A/5109, 1962, para.4. See *id*., at 3.

December 1961, the General Assembly had taken a significant step in the history of the development of space law by adopting a guiding principle stressing that outer space and celestial bodies would be 'free for exploration and use by all states in conformity with international law and would not be subject to national appropriation'.[80] And, in December 1963, it was further elaborated with the adoption of the 'Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space',[81] which then formed the basis of the Outer Space Treaty of 1967.[82] The COPUOS also developed, besides the legal principles governing space activities, four other multilateral treaties to regulate human activities in space. They are the Rescue Agreement of 1968,[83] the Liability Convention of 1972,[84] the Registration Convention of 1975,[85] and the Moon Agreement 1979.[86] These United Nations international treaties established the core regime for international space law. Thus far, the United Nations has been playing a primary role in developing the international space law, particularly through COPUOS, which is considered the most obvious forum for the growth of space law.[87]

The third aspect is in relation to the space law institutions and social organizations. In this respect, of the institutions and organizations that have played an important role in the evolution of space law from its initial stage, the best example is the International Astronautical Federation (IAF).[88] Its emergence in 1951 served as an international forum for

[80] UNGA Res. 1721 A (XVI), on the 'International Co-operation in the Peaceful uses of Outer Space' adopted on 20 December 1961. Matte, Nicolas Mateesco, "Space Law", *Encyclopaedia of Public International Law: Law of the Sea, Air and Space Law,* Published under the Auspices of the Max Planck Institute For Comparative Public Law and International Law Under the Direction of Rudolf Bernhardt, (Amsterdam: North-Holland, 1989), at 304.

[81] UNGA Res. 1962 (XVIII), on the 'Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space,' adopted on 13 December 1963; *id*.

[82] For more information, read Chapter 2 of the thesis (2.3.3 (a) The Outer Space Treaty 1967). See also *infra* note 161.

[83] For more information, read Chapter 2 of the thesis (2.3.3 (b) The Rescue Agreement 1968). See also *infra* note 180.

[84] For more information, read Chapter 2 of the thesis (2.3.3 (c) The Liability Convention 1972). See also *infra* note 196.

[85] For more information, read Chapter 2 of the thesis (2.3.3 (d) The Registration Convention 1975). See also *infra* note 212.

[86] For more information, read Chapter 2 of the thesis (2.3.3 (e) The Moon Agreement 1979). See also *infra* note 231.

[87] Matte, "Space Law", *supra* note 80, at 304; see also, Lyall, Francis, *supra* note 46, at 17.

[88] IAF is an international non-governmental and non-profit organization that is based in Paris and works closely with the United Nations. Among its missions are the promotion of public awareness and appreciation of space activities, and the exchange of information on space programme developments and plans. It has 206 members from 58 countries. IAF has a permanent observer status with the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS). Prof. Dr. Berndt Feuerbacher of Germany is the current President. Its website is available at http://www.iafastro.com/, accessed: 31 October 2012.

exchanging views and information on all aspects of astronautics, including space law.[89] This was achieved through its meetings, the series of *Acta Astronautica*,[90] and the Proceedings of the International Institute of Space Law. In 1960 the IAF established the International Academy of Astronautics (IAA) which convenes experts to exchange ideas and experience to contribute to the advancement of space and astronautics.[91] Four days after the launch of Sputnik, the Eighth IAF International Congress on Astronautics was held in October 1957. In 1958, The Hague Colloquium decided that a 'Permanent Legal Committee' should be established within the IAF to study the problem of space law and this was accepted by the IAF Congress in the same year. In 1960, the IAF founded the 'International Institute of Space Law (IISL)'[92] replacing the 'Permanent Legal Committee'. This Institute continues to organize the famous annual colloquia during the Congresses of the IAF. Its colloquia proceedings have made a significant contribution to the corpus of space law.[93]

Another active non-governmental organization is the International Law Association (ILA),[94] founded in Brussels in 1873 and consisting of an international group of lawyers. ILA studies and helps to clarify the international law as well as producing a number of reports on space law. In 1958, ILA Space Law Committee was set up in New York. The Committee submitted its fifth report addressing the 'Legal aspects of the privatization and commercialization of space activities: remote sensing and national space legislation' at the Sofia Conference (the 75th ILA Conference held in Sofia on 26-30 August 2012). It was adopted by the Conference without dissent. There are two parts of the report: Part I (remote sensing and satellite data in court, dispute settlement and space debris); and Part II (national space legislation – 'the Sofia

[89] Doyle, *supra* note 45, at 3.
[90] *Acta Astronautica* is a monthly journal publication of the International Academy of Astronautics (IAA) that covers developments in space science technology. See http://www.iafastro.net/?id=457, accessed: 13 May 2014.
[91] IAA was founded on 16 August 1960 in Stockholm, Sweden. It is an independent non-governmental organization working closely with United Nations. Its aims, among others, are to foster development of astronautics for peaceful purposes, and to provide a program by which members can contribute to international endeavour. It has 899 full members and 277 corresponding members from 84 countries. It was originally led by Theodore Von Karman, a prominent figure in the evolution of rocketry. IAA has a permanent observer status with the UNCOPUOS. The current president is Dr. Madhavan G. Nair of India. Its website is available at http://iaaweb.org/, accessed: 31 October 2012. Lyall, Francis, *supra* note 46, at 9.
[92] Among the objectives of the IISL are to cooperate with international organizations and national institutions in the space law sphere, and to foster the development of space law. Its current president is Mrs Tanja L. Masson-Zwaan of Netherlands. Its website is available at http://www.iislweb.org/, accessed: 13 May 2014.
[93] Lyall, Francis, *supra* note 46, at 10.
[94] ILA is a non-profit organization, headquartered in London. Its aim is to promote the study, clarification and development of international law, including space law. It membership ranges from lawyers, academics, government and judiciary. Its current president is Professor Ruth Wedgwood. Its website is available at http://www.ila-hq.org/, accessed: 13 May 2014; read also UN Doc. A/AC.105/C.2/103, 1 February 2013.

Guidelines for a Model Law on National Space Legislation') (hereinafter, 'the Sofia Guidelines'). This report is contained in UN Doc. A/AC.105/C.2/103 (1 February 2013). The Committee has indeed contributed significantly in the drafting of the Sofia Guidelines, available in French and English with explanatory notes. The Sofia Guidelines were adopted by the 75th ILA Conference on 30 August 2012 as resolution 6/2012, and available in UN Doc. A/AC.105/C.2/2013/CRP.6 (26 March 2013). It is the first of their kind of international instrument laying down a proposal for a Model Law dealing with national space legislation. The Committee also takes part in the work of the expert group on the development of an education curriculum in space law.[95]

Among other main early institutions is McGill University of Montreal, which established the Institute of International Air Law in September 1951 headed by Professor John Cobb Cooper. At present, it bears the name of 'Institute of Air and Space Law (IASL)'.[96] Its renowned journal, *Annals of Air and Space Law*, which was been published since 1976, has contributed significantly to the corpus of space law. The Institute of Air and Space Law (*Institut für Luft- und Weltraumrecht*)[97] of Cologne University was founded in 1925. It is the oldest of its kind in the world, and its famous journal, *Zeitschrift für Luft- und Weltraumrecht (ZLW)* (The German Journal of Air and Space Law)[98], has played the same role. Another example is the University of Mississippi's School of Law, with its publication *Journal of Space Law*,[99] founded in 1973 by Professor Stephen Gorove. In Holland, Leiden University initiated air law studies following the appointment of Professor Daniel Goedhuis in 1938, with the establishment of a chair in 1947. It then introduced space law in 1961. These endeavours were continued by Professor Henri Wassenbergh who, in 1985, founded the Leiden Institute of Air and Space Law, currently known as International Institute of Air and Space Law

[95] The current officers of the ILA Space Law Committee are Professor Maureen Williams (headquarters - London) as Chair, and Professor Stephan Hobe (Germany) as General Rapporteur. The Committee has a permanent observer status with the UNCOPUOS. See *Id*. The full text of the Sofia Guidelines for a Model Law is available in the UN Doc. A/AC.105/C.2/2013/CRP.6, 26 March 2013; read also the fifth ILA Report in the UN Doc. A/AC.105/C.2/103, 1 February 2013; Lyall, Francis, *supra* note 46, at 10.

[96] IASL official website is available at http://www.mcgill.ca/iasl/, accessed: 13 May 2014.

[97] Its official website is at http://www.ilwr.de/index.php?lang=eng, accessed: 13 May 2014.

[98] The *ZLW* was first published by Prof. Alex Meyer under the name of *Zeitschrift für Luftrecht* (Journal of Air Law) in 1951/1952. For an excellent account of its history, refer "The History of the "Zeitschrift für Luft- und Weltraumrecht, ZLW" (German Journal of Air and Space Law), available at http://www.uni-koeln.de/jur-fak/instluft/geschichte/01_08.pdf, accessed: 13 May 2014.

[99] For more information, refer to http://www.spacelaw.olemiss.edu/jsl/index.html, accessed: 13 May 2013.

(IIASL).[100] Among other universities, the University of el Salvador in Buenos Aires, Argentina established a chair of Air and Space Law in 1960, and also a National Institute of Air and Space Law in 1962.[101] In 1990, the European Centre for Space Law (ECSL)[102] was established under the leadership of Dr G. Lafferanderie. It is also worth mentioning the David Davies Memorial Institute of International Studies (United Kingdom), which has contributed to the Draft Code of Rules on the Exploration and Uses of Outer Space of 1963.[103]

2.3.2. Meaning and Sources of International Space Law: An Overview

The increase in world space activities and the complexity of their nature may lead to a variety of space legal problems. To deal with such situations, a body of legal norms came into existence to regulate the relations between states, international organizations, and private persons arising from the exploration and use of outer space.[104] With respect to the meaning of space law, in practical terms it refers to a body of norms governing the legal relations arising in connection with space exploration. In a wider sense, it covers all the national rules including the constitutional law, state-administrative law, and civil, criminal, and private international law that relates to space activities or their effects. And, in a narrower sense, it regulates the international relations connected with space exploration and the use of outer space.[105] There are also some other meanings proposed by publicists such as Münch. He referred to international space law as a legal system that is applied to a zone adjacent to the air region which carries traditional aircraft.[106] Meanwhile, Homburg claimed that it is a system of rules of navigation beyond the Earth's atmosphere.[107] Lachs, however, wrote that it refers to law intended to regulate relations between states to determine their rights and duties resulting from all activities directed towards outer space and within it, and to do so in the interest of mankind as a whole, to offer protection to life, terrestrial and non-terrestrial,

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[100] The IIASL official website is available at http://law.leiden.edu/organisation/publiclaw/iiasl/, accessed: 13 May 2014.
[101] Lyall, Francis, *supra* note 46, at 13.
[102] The ECSL official website is available at http://www.esa.int/SPECIALS/ECSL/, accessed: 13 May 2014.
[103] Lyall, Francis, *supra* note 46, at 11-15; see also Gál, Gyula, *supra* note 46, at 27.
[104] Bogaert, E.R.C. van, *Aspects of Space Law,* (Deventer: Kluwer Law and Taxation, 1986), at 6.
[105] Gál, Gyula, *supra* note 46, at 35-37.
[106] Münch, I.von, "Grundfragen des Weltraumrechts", *Archiv des Völkerrechts,* (1959), at 156, as cited in Bogaert, E.R.C. van, *supra* note 104, at 7.
[107] Homburg, R., "Droit Astronautique et Droit Aerien", *Revue Générale de 1'air,* (1958), at 11-16, as cited in *id*.

wherever it may exist.[108] Despite those numerous meanings prescribed by scholars, it is stipulated that the international space law denotes rules governing the outer space area.

Since the international space law has been regarded as part of international law, in principal it follows the sources of international law. A source of law refers to the basis or source to which one refers while determining or drafting the law on a particular matter.[109] There are two types of sources of international law: material sources and formal sources. The material source refers to the place in which the terms of the rule are set out, such as in treaties, United Nations General Assembly resolutions, proposals of the United Nations International Law Commission, judicial decisions, and even statements in textbooks. However, formal sources in fact determine the question of the authority as a rule of law which is binding on states.[110] The sources are established based on Article 38, Statute of the International Court of Justice[111]. The order of arrangement of the sources was not stated to represent a hierarchy, but does represent an order of importance which, in practice the court may be expected to observe.[112] Relying on this, the international space law sources may incorporate the following:

(a) International Treaty and Convention

The circumstances of the natural global tasks of outer space undoubtedly necessitated early international regulations by treaty. A treaty is defined as 'an international agreement concluded between states in written forms and governed by international law, whether

[108] Lachs, M., "The International Law of Outer Space", (1964-III) 113 *Recueil des Cours,* at 33; Diederiks-Verschoor, I.H.Ph. and V.Kopal, *supra* note 47, at 7.
[109] Lyall, Francis, *supra* note 46, at 31.
[110] It is said that the material source supplies the substance of the rule to which the formal source gives the force and nature of the law. For more information, read Thirlway, Hugh, "The Sources of International Law", *International Law,* Ed., Evans, Malcolm D., (New York: Oxford University Press Inc., 2003), at 117-120; MacLean, Robert M., ed., *Public International Law Textbook,14th Edition,* (London: HLT Publications, 1992), at 8.
[111] Article 38, Statute of the International Court of Justice (hereinafter, 'Statute of the ICJ') stipulates: *'The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply:*

- *(a) International conventions, whether general or particular, establishing rules expressly recognised by the contesting states;*
- *(b) International custom, as evidence of a general practice accepted as law;*
- *(c) The general principles of law recognised by civilised nations;*
- *(d) Subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.'*

[112] MacLean, Robert M., *supra* note 110, at 7.

embodied in a single instrument or in two or more related instruments, and whatever its particular designation'.[113] These agreements are given numerous names such as conventions, pacts, declarations, charters, concordats, protocols, and covenants.[114] To qualify as treaties, they must satisfy certain criteria.[115]

In comparison with the process of law creation through custom, treaties are considered a more modern and more deliberated method.[116] Indeed, they were preferred to customary law.[117] In practice, treaties are seen as the most important source of international law as they need the express consent of the parties.[118] Furthermore, they can be used as an instrument of anticipatory legal regulation of future activities which do not exist at the time when the treaty is concluded.[119] The treaty's binding nature is, in fact, based on the *pacta sunt servanda* principle.[120] Article 26 of the Vienna Convention on the Law of Treaties 1969 affirms that 'every treaty is binding upon the parties to it and must be performed by them in good faith'. The first and earliest space treaty is the 'Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies' (also known as the 'Outer Space Treaty 1967')[121]. This treaty serves as a foundation for the exploration and use of outer space. There are four other major corpuses of United Nations outer space treaties: (1) the Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space (also known as 'the Rescue Agreement 1968');[122] (2) the Convention on International Liability for Damage Caused by

[113] Article 2(1)(a), Vienna Convention on the Law of Treaties 1969. This is a multilateral convention that codified the law of treaties. It was adopted in 1969 and accepted by a large number of states.
[114] MacLean, Robert M., *supra* note 110*,* at 157.
[115] Those criteria are: (a) It should be a written instrument or instruments between two or more parties; (b) Parties must be endowed with international personality; (c) It must be governed by international law; (d) It should be intended to create legal obligations. See *id*.
[116] Shaw, Malcolm N., *International Law,* (United Kingdom: Cambridge University Press, 2004), at 88.
[117] Matte, Nicolas Mateesco, ed. *Space Activities and Emerging International Law,* (Canada: Centre for Research of Air & Space Law, 1984), at 73.
[118] Shaw, Malcolm N., *supra* note 116, at 87.
[119] Vereshchetin, V.S. and Danilenko, Gennady M., "Custom as a Source of International Law of Outer Space", (1985) 13 *Journal of Space Law* 22, at 23.
[120] The principle means that agreements must be kept, or treaties observed. Martin, Elizabeth A. And Jonathan Law, eds., Oxford Dictionary of Law, (New York: Oxford University Press Inc., 2006), at 378; Thirlway, Hugh, *supra* note 110, at 122.
[121] It was accepted by UNGA Res. No. 2222 (XXI), 19 December 1966, opened for signature in Moscow on 27 January 1967, and entered into force on 10 October 1967. For more information, read Chapter 2 of the thesis (2.3.3(a) The Outer Space Treaty 1967).
[122] It was accepted by UNGA Res. No. 2345 (XXII), adopted on 19 December 1967, opened for signature on 22 April 1968, and entered into force on 3 December 1968. For more information, read Chapter 2 of the thesis (2.3.3(b) The Rescue Agreement 1968).

Space Objects (also known as 'the Liability Convention 1972');[123] (3) the Convention on Registration of Objects Launched into Outer Space (also known as 'the Registration Convention 1975');[124] and (4) the Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (also known as the 'Moon Agreement 1979').[125]

Space law does not consist solely of United Nations-made law; it is complemented by law resulting from other multilateral and bilateral agreements,[126] e.g. agreements entered into by the space-faring nations to govern matters such as cooperation in space science, research and space development, satellite communication, remote sensing, earth observation, space launching, and many others.[127] Such multilateral agreements include the Convention on the Transfer and Use of Data of Remote Sensing of the Earth from Outer Space (19 May 1978), and the Agreement establishing the Asia-Pacific Institute for Broadcasting Development (12 August 1977). Meanwhile, bilateral legal instruments include the Agreement between Argentina and China on Cooperation in Research and Development in the Field of Aerospace Science (16 May 1988) and the Agreement between the United States and Ukraine Regarding the International Trade in Commercial Space Launch Service (21 February 1996).[128] Space law also consists of the multilateral agreements and arrangements established by inter-governmental organizations such as INTELSAT,[129] EUMETSAT,[130] and ARABSAT.[131]

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[123] It was accepted by UNGA Res. No. 2777 (XXVI), adopted on 29 November 1971, opened for signature on 29 March 1972, and entered into force on 1 September 1972. For more information, read Chapter 2 of the thesis (2.3.3(c) The Liability Convention 1972).

[124] It was accepted by UNGA Res. No. 3235 (XXIX), adopted on 12 November 1974, opened for signature on 14 January 1975, and entered into force on 15 September 1976. For more information, read Chapter 2 of the thesis (2.3.3(d) The Registration Convention 1975).

[125] It was accepted by UNGA Res. No. 34/68, adopted on 5 December 1979, opened for signature on 18 December 1979, and entered into force on 11 July 1984. For more information, read Chapter 2 of the thesis (2.3.3(e) The Moon Agreement 1979).

[126] The reasons behind the multilateral and bilateral agreements are, inter alia, to overcome the problems of certain projects that are too complicated and costly to be conducted by a single space power, to acquire space techniques and conduct space activities, and to exchange space information and experience, particularly for the small space nations. Matte, Nicolas Mateesco, *Aerospace Law: From Scientific Exploration to Commercial Utilization,* (Canada: The Carswell Company Limited, 1977), at 71.

[127] Jasentuliyana, Nandasiri, *supra* note 54, at 7-11.

[128] For a list of its agreements and legal documents, see United Nations for Outer Space Affairs, *International Agreements, and Other Available Legal Documents Relevant to Space-related Activities: A List of International Agreements and Other Available Legal Documents Relevant to Space-Related Activities,* (New York: United Nations, 1999).

[129] International Telecommunications Satellite Organization (INTELSAT), 20 August 1971, is a major communication satellite service provider. It owns and manages a constellation of communications satellites providing international broadcast services. Its website is at http://www.intelsat.com/; refer also http://en.wikipedia.org/wiki/Intelsat, accessed: 1 November 2012.

[130] European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), 24 May 1983 (1990 UKTS 32), is an intergovernmental organization established through an international convention agreed by at

(b) Customary International Law

International custom is the next source for consideration after the treaty, particularly in the absence of the treaty or convention. Historically, evidence shows that custom was the first source of the international outer space law before the conclusion of the Outer Space Treaty 1967.[132] Its existence can be deduced from the practice and behaviour of states.[133] Article 38, Statute of the ICJ, refers to 'international custom, as evidence of a general practice accepted as law'.[134] The international custom has two main roles: firstly, it serves as a source of legal rights and obligations of states in their mutual relations whenever the treaty regulation is absent. Secondly, it regulates the relations of states when both or either are/is parties or non-parties to a codifying convention.[135] The validity of the source depends on certain requirements including consistency of a practice.[136] However, proof of a long-lasting or an immemorial practice is unnecessary when the rules, in certain circumstances, can emerge from fairly quick maturing of practice.[137] This 'instant' customary law can prescribe valid rules without having to undergo a long period of gestation.[138] The foregoing considerations on the instant development of space law do not necessarily have their counterpart in other branches of public international law, but this question goes beyond the scope of this dissertation.

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least 26 European Member States. Its aims are to establish, maintain and exploit European systems of operational meteorological satellites. Its website is available at http://www.eumetsat.int/; see also http://en.wikipedia.org/wiki/European_Organisation_for_the_Exploitation_of_Meteorological_Satellites, accessed: 1 November 2012.

[131] Arab Corporation for Space Communication (ARABSAT), 14 April 1976, is the main communication satellite operator in the Arab world. It aims to deliver satellite-based, public and private telecommunications services to the Arab States. At present, it has more than 20 member countries. Its website is available at http://www.arabsat.com/; refer also http://en.wikipedia.org/wiki/Arab_Satellite_Communications_Organization#History, accessed: 2 November 2012.

[132] Vereshchetin, V.S., *supra* note 119, at 25.

[133] Shaw, Malcolm N, *supra* note 116, at 69.

[134] Article 38, Statute of the ICJ, *supra* note 111.

[135] Vereshchetin, V.S., *supra* note 119, at 24.

[136] The elements of custom are discussed in Brownlie, Ian, *Principles of Public International Law,* (United States: Oxford University Press, 2008), at 7-8.

[137] See *id*., at 7; Shaw, Malcolm N, *supra* note 116, at 70

[138] Judge Lachs (International Court of Justice) emphasized that a short period of time is not itself a bar to the formation of rule of customary law; 'Bogaert feels there is no need for a practice to be long lasting, provided recognition is properly signalled. He further notes it might be logical to consider approval by the UNGA as an expression of such recognition', as quoted from Diederiks-Verschoor, *supra* note 47, at 11; Shaw, Malcolm N, *supra* note 116, at 70; Bogaert, E.R.C. van, *supra* note 104, at 20.

Some instances of customary international rules of outer space include the following: outer space is open and free for exploration and use by all states; outer space is not subject to national appropriation; the national sovereignty of states does not extend to outer space; and states retain jurisdiction and control over space objects launched into outer space.[139]

(c) General Principles of Law

The general principles of law may derive from international treaties or customary law rules. To qualify under such a category, a legal rule must be recognised by a fair number of nations.[140] The first general principle of international space law to be established was 'outer space and celestial bodies are free for exploration and use by all states in conformity with international law and are not subject to national appropriation', which was laid down in the UNGA Resolution 1721.[141] This principle, with a number of other principles, was declared in the Resolution of 1962 entitled 'Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space'.[142] This declaration then formed the basis of the Outer Space Treaty 1967. However, many United Nations member states do not consider resolutions, which contained the principles therein, binding except when such principles are reproduced in treaties.[143] This is reflected in Article 10 of the United Nations Charter, which established that the General Assembly can make recommendations on subjects discussed but has no legislative power.

Even though space resolutions have no constitutive effect, it is agreed that such resolutions must be respected based on the principle of good faith. This claim is based on the evidence that resolutions play an important role in the process of forming new principles and norms of international law, as well as corroborating, consolidating and interpreting the existing principles and norm of the international law. Indeed, UNGA Resolutions on space carry extra weight because of the consensus rule in COPUOS. In fact, violating the resolutions would

[139] Vereshchetin, V.S., *supra* note 119, at 25; Matte, Nicolas Mateesco, *supra* note 117, at 81; Gál, Gyula, *supra* note 46, at 44.
[140] Matte, Nicolas Mateesco, *supra* note 117, at 87.
[141] UNGA Res. 1721 A (XVI), on the 'International Co-operation in the Peaceful uses of Outer Space' adopted on 20 December 1961.
[142] UNGA Res. 1962 (XVIII), *supra* note 81.
[143] Matte, Nicolas Mateesco, *supra* note 117, at 86. For the legal effect of UN Resolution, read Ogunbanwo, Ogunsola B., *International Law and Outer Space Activities,* (The Hague: Martinus Nijhoff Publishers, 1975), at 15-16.

amount to contempt of the legal conviction declared by the members of the United Nations. Additionally, it would be treated as a violation of the *bona fide* undertaken by the act of signing the Charter and accepting the obligations therein.[144]

(d) Other Subsidiary Material Sources

Other informal sources may include judicial decisions, and the teaching of the most qualified publicists. The decisions of international tribunals and national courts dealing with international outer space matters are also regarded as authoritative evidence. The same is true for the highly qualified publicists who contribute to the formation and development of international space law through their published works.[145]

2.3.3. Malaysia and the Five Outer Space Conventions

In Malaysia, jurisdiction and power in respect of international treaties, agreements, and conventions is a competence of the Malaysian Federal Government and not the State Government. This is construed from Article 74(1) read together with Item 1(a) and (b) of the Federal List, the Malaysian Federal Constitution.[146] By virtue of this Article, the Federal Government has power to deal with matters enumerated in the Federal List and also the Concurrent List of the Federal Constitution.[147] In this context, one of the significant matters listed under the Federal List is 'external affairs'. This term has been further described to include: '*(a) treaties, agreements and conventions with other countries …*, and also *(b) implementation of treaties, agreements and conventions with other countries'*.[148] Thus, it is submitted that the Federal Government has exclusive jurisdiction and power in regard to outer space treaties, agreements, and conventions.[149]

[144] Some argued that the resolutions are binding in the sense that they are evidence of international customary law. See Matte, Nicolas Mateesco, *supra* note 117, at 85; Gál, Gyula, *supra* note 46, at 44-46.
[145] Matte, Nicolas Mateesco, *supra* note 117, at 90.
[146] For detail of Article 74 of the Federal Constitution, see Chapter 1, *supra* note 107. For Item 1(a) and (b), List I – Federal List, see Chapter 1, *supra* note 115.
[147] See Annex 1: List I-Federal List, under the Ninth Schedule, Malaysian Federal Constitution. See also Annex 3: List III – Concurrent List under the Ninth Schedule, Malaysian Federal Constitution.
[148] See Item 1(a) and (b), List I – Federal List. For detail refer Chapter 1, *supra* note 115.
[149] For more information, read Chapter 1 of the thesis (1.2.2(c) The Malaysian Federal Constitution).

Article 80(1) of the Federal Constitution prescribes: *'... the executive authority of the Federation extends to all matters with respect to which Parliament may make laws ...'*[150] Hence, it is construed that the Federation's executive authority has extended to the making or conclusion of the international treaties, agreements, and conventions with other countries including the treaties, agreements and conventions in relation to outer space related-matters. At this juncture, by virtue of this Article and Item 1 of the Federal List, it is noted that the treaty-making power in Malaysia is vested in the executive authority of the Federal Government.[151] Meanwhile, Article 39 of the Federal Constitution further explains that the executive authority of the Federation shall, in fact, be vested in the Yang di-Pertuan Agong (the King) and exercisable by him or Cabinet or any Minister authorised by the Cabinet.[152] Such circumstance is then re-affirmed in the case of *the Government of the State of Kelantan v. the Government of the Federation of Malaya and Tunku Abdul Rahman Putra Al-Haj*.[153]

Regarding the international space treaties and conventions, there are five major regimes of space treaties and conventions formulated by the UNCOPUOS[154] and approved by the United Nations General Assembly. These space treaties are: (1) the Outer Space Treaty 1967;[155] (2) the Rescue Agreement 1968;[156] (3) the Liability Convention 1972;[157] (4) the Registration

[150] See Article 80 (Distribution of Executive Powers), sub clause 1 of the Federal Constitution.
[151] Abdul Ghafur Hamid @ Khin Maung Sein, "Treaty-Making Power in Federal States with Special Reference to the Malaysian Position", (2003) 30 *Journal of Malaysian and Comparative Law (JMCL)*, 65-88. See also Abdul Ghafur Hamid @ Khin Maung Sein, "Judicial Application of International Law in Malaysia: An Analysis", *The Malaysian Bar,* 31 March 2006, http://www.malaysianbar.org.my/international_law/judicial_application_of_international_law_in_malaysia_an_analysis.html, accessed: 13 May 2014.
[152] According to Article 39 of the Malaysian Federal Constitution, the executive authority of Federation shall be vested in the Yang di-Pertuan Agong and exercisable … by him or by Cabinet or any Minister authorised by the Cabinet. See also Abdul Ghafur Hamid @ Khin Maung Sein, "Judicial Application of International Law in Malaysia: An Analysis", *id.*
[153] [1963] MLJ 355 (Federation of Malaya High Court). In this case, Kelantan, one of states in the Federation of Malaya, challenged the constitutionality of Malaysia Agreement, an international treaty signed by the United Kingdom, the Federation of Malaya, Singapore, Sabah and Sarawak. The Federation of Malaya was represented by the Prime Minister, the Deputy Prime Minister, and four other members of the Cabinet. The state of Kelantan argued that the consent of the individual States of the Federation of Malaya should have been obtained before the arrangements for Malaysia can be lawfully implemented. By virtue of Article 39 and 80(1) of the Federal Constitution, Court affirms the constitutionality of the Malaysia Agreement. See also Abdul Ghafur Hamid @ Khin Maung Sein, "Judicial Application of International Law in Malaysia: An Analysis", *supra* note 151.
[154] The UNCOPUOS was established on 12 December 1959 by the UNGA Res. 1472 (XIV). For further elaboration read Chapter 2 of the thesis (2.4.1 (a) United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS).
[155] The Outer Space Treaty 1967, *infra* note 161.
[156] The Rescue Agreement 1968, *infra* note 180.
[157] The Liability Convention 1972, *infra* note 196.

Convention 1975;[158] and (5) the Moon Agreement 1979.[159] These treaties serve as the basis of the international space law. They principally support the idea of maintaining international peace and security, as well promoting international cooperation and understanding in the exploration and use of outer space.[160] This section will present an overview of each of these treaties and highlight the position of Malaysia in relation to signature and ratification of the treaties.

(a) The Outer Space Treaty 1967

The treaty on Principles Governing the Activities of States in the Exploration and Use of the Outer Space, Including the Moon and Other Celestial Bodies, commonly known as the 'Outer Space Treaty 1967'[161], was adopted by the United Nations General Assembly in its Resolution 2222 (XXI) on 19 December 1966. It was opened for signature on 27 January 1967 in London, Moscow, and Washington D.C., and entered into force on 10 October 1967.[162] As a cornerstone of the international space law, the Outer Space Treaty provides the foundation of the international legal order in outer space by laying down the general principles and rules of the law of outer space.

The origins of the Treaty date back to the 1950s and are closely related to the development of space science and technology and the wide range of legal issues related to the exploration and use of outer space.[163] A major concern arose specifically after the launch of Sputnik-1 on 4 October 1957 by the Soviet Union and Explorer-1 on 31 January 1958 by the United

[158] The Registration Convention 1975, *infra* note 212.
[159] The Moon Agreement 1979, *infra* note 231.
[160] Jasentuliyana, Nandasiri, *supra* note 54, at 4.
[161] Treaty on Principles Governing the Activities of States in the Exploration and Use of the Outer Space, Including the Moon and Other Celestial Bodies (1967) (Resolution 2222 (XXI)). (1967) 610 UNTS 205, 18 UST 2410, TIAS 6347; (1967) 6 ILM 386; (1967) 61 AJIL 644. In this section, all Articles, unless specified otherwise, refer to those in the Outer Space Treaty 1967. The full text of the treaty is available at United Nations, *United Nations Treaties and Principles on Outer Space: Text of Treaties and Principles Governing the Activities of States in the Exploration and Use of Outer Space, Adopted by the United Nations General Assembly,* (New York: United Nations, 2002), at 3, http://www.oosa.unvienna.org/pdf/publications/STSPACE11E.pdf, accessed: 13 May 2014.
[162] The depositories of the Outer Space Treaty are: Russian Federation, United Kingdom of Great Britain and Northern Ireland, and United States of America. United Nations, *United Nations Treaties and Principles on Outer Space and Related General Assembly Resolutions: Status of International Agreements Relating to Activities in Outer Space as at 1 January 2009*, Addendum, Ref.: Sales No. E.08.1.10, ST/SPACE/11/Rev.2/Add.2 (Vienna: United Nations, 2009), at 2.
[163] He, Qizhi, "The Outer Space Treaty in Perspective", (1998) 40 *IISL Colloquium on the Law of Outer Space* 51.

States.[164] This accessibility of outer space to mankind was troubling to the international community for there was a great possibility of the area being misused in the arms race between the space superpowers. This situation prompted the United Nations to respond quickly and accordingly by setting up an *ad hoc* Committee on COPUOS in 1958 based on Resolution 1348 (XIII).[165] The Committee then became permanent in 1959 based on Resolution 1472 (XIV).[166] The Committee was entrusted with studying the legal problems that could possibly arise from the space activities. Since then, the COPUOS has continued with its tasks by adopting numerous resolutions including Resolution 1721 (XVI)[167] and Resolution 1962 (XVIII)[168] which later led to the formation of the Outer Space Treaty in 1967. Guided by the basic articles established in the Outer Space Treaty, the COPUOS afterwards developed the legal rules in more detail, later incorporated in four other outer space treaties.[169] By common consent, the Outer Space Treaty is regarded as the basic charter for all space activities, and the four additional treaties, which will be discussed in the next section, are elaborations of specific principles set forth in the Outer Space Treaty.[170]

Malaysia is currently a signatory state to the Outer Space Treaty but without ratification.[171] Malaysia signed the Treaty on three different dates and at three different places. They were on 20 February 1967 in Washington D.C., on 21 February 1967 in London, and on 3 May 1967 in Moscow.[172] By signing a treaty, a state signifies its preliminary consent to be bound by such treaty.[173] This is evidenced by Article 11 of the Vienna Convention on the Law of

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[164] For more details of the event, read Davies, J.K., *Space Exploration*, Chambers Encyclopaedic Guides Series, (Edinburgh: W & R Chambers, 1992), at 46-49, 221-224.
[165] UNGA Res. 1348 (XIII), on the 'Question of the Peaceful Use of Outer Space', adopted on 13 December 1958.
[166] UNGA Res. 1472 (XIV), on the 'International Co-operation in the Peaceful uses of Outer Space', adopted on 12 December 1959.
[167] UNGA Res. 1721 (XVI), on the 'International Co-operation in the Peaceful uses of Outer Space' adopted on 20 December 1961.
[168] UNGA Res. 1962 (XVIII), *supra* note 81.
[169] For instance: Articles V and VIII established the Rescue Agreement 1968; Article VII created the Liability Convention 1972; Articles V and VIII constructed the Registration Convention 1974; Articles IV, XII, and others formed the Moon Agreement 1979. See Kolosov, Y, "Background and History of the Outer Space Treaties", (1998) 40 *IISL Colloquium on the Law of Outer Space* 437.
[170] Kupperman, Helen S., George E. Reese and David J. Thacher, "Maintaining Outer Space for Peaceful Purposes through International Cooperation", (1988) 30 *IISL Colloquium on the Law of Outer Space* 52, at 53.
[171] The Outer Space Treaty 1967 has 101 states parties and 26 signatory states. See http://www.oosa.unvienna.org/oosatdb/showTreatySignatures.do, accessed: 13 May 2014.
[172] See *id*., and http://www.fas.org/nuke/control/ost/text/space5.htm, accessed: 13 May 2014.
[173] There are three traditional methods of expressing consent to a treaty: by signature, ratification, and accession. For details, read MacLean, Robert M., *supra* note 110, at 163-164; see also Fitzmaurice, Malgosia, "The Practical Working of the Law of Treaties", *International Law,* Ed., Evans, Malcolm D., (New York: Oxford University Press Inc., 2003), at 173.

Treaties which affirmed: *'The consent of a state to be bound by a treaty may be expressed by signature, exchange of instruments constituting a treaty, ratification, acceptance, approval or accession; or by any other means if so agreed'*.[174] However, when the signature of a treaty is subject to ratification, as occurs with some treaties including the Outer Space Treaty in its Article XIV(2),[175] such signature does not yet establish consent to be bound by the treaty. This is exactly the case for Malaysia in relation to the Outer Space Treaty. Thus, the signing of the Treaty by Malaysia may simply represent an authentication of its text, and it does not create a legally binding force until it enters the ratification stage.

A good illustration of this type of situation is the *North Sea Continental Shelf Cases* (1969).[176] However, this does not mean that Malaysia is free from any related obligation. Pursuant to Article 18 of the Vienna Convention on the Law of Treaty, it emphasizes that a signatory state which has not yet ratified the treaty is required or has an obligation to abstain from any acts that would contradict the object and purpose of the treaty.[177] Thus, at this juncture, it signifies even though Malaysia is only a signatory state to the Outer Space Treaty, however, Article 18 of the Vienna Convention on the Law of Treaty imposes the state with legal obligation to refrain from any actions that could refute the aim and purpose of the treaty it signed.

Apart from that, it is also important to note when a treaty is declaratory of customary law in nature, then both the signatory state, even without ratification, and the non-party state may be bound by its provisions and rules. This is affirmed in Article 38 of the Vienna Convention on the Law of Treaty which prescribes an exception to the general rule of a treaty as stated in Article 34 of the Vienna Convention, that it does not create rights and obligations without the

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[174] Vienna Convention on the Law of Treaties 1969, adopted on 22 May 1969, opened for signature on 23 May 1969, entered into force on 27 January 1980. 1155 UNTS 331, (hereinafter, 'the Vienna Convention on the Law of Treaties').

[175] Article XIV (2), the Outer Space Treaty 1967, mentions: *This Treaty shall be subject to ratification by signatory States*. On the other hand, when a treaty is not subject to ratification, a state's signature will signify consent to be bound. For more details, read MacLean, Robert M., *supra* note 110, at 163-164.

[176] The Federal Republic of Germany was a signatory to the 1958 Geneva Convention on the Continental Shelf, but did not ratify it. The Court held that Article 6 of the Convention was not binding on the Republic because its signature was only a 'preliminary step: it did not ratify the Convention, is not a party to it and therefore cannot be contractually bound by its provisions'. Refer *North Sea Continental Shelf Cases* (1969) ICJ Rep. at 3; MacLean, Robert M., *supra* note 110, at 163.

[177] Article 18(a), Vienna Convention on the Law of Treaties 1969, prescribes: *'A state is obliged to refrain from acts which would defeat the object and purpose of a treaty when: (a) it has signed the treaty or has exchanged instruments constituting the treaty subject to ratification, acceptance or approval, until it shall have made its intention clear not to become a party to the treaty'.* See *supra* notes 174; Lyall, Francis, *supra* note 46, at 70.

consent of state or the non-party state unless the treaty becomes part of customary rule of international law and consequently becomes binding upon them.[178] In such circumstances, in the case of the Outer Space Treaty it may be argued that certain rules of the Treaty have passed into customary rules of international law, and it hence becomes binding upon all states. Such rules include, for instance, the free exploration and use of outer space by all (Article I), the exploration and use being for the benefit of all (Article I), outer space not being subject to national appropriation (Article II), the application of international law in outer space (Article III), states being responsible for their national activities and having a duty to authorise and continue supervision of the activities (Article VI), and states' responsibility and liability for damage caused to other states by such activities (Article VII).[179] Therefore, from the perspective of the customary international law, the legal effect of Malaysia's signature of the Outer Space Treaty is that the country is most probably bound by the provisions of the Treaty even though Malaysia has yet to ratify it.

(b) The Rescue Agreement 1968

Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, commonly known as the 'Rescue Agreement 1968'[180], was adopted by the United Nations General Assembly in its Resolution 2345 (XXII) on 19 December 1967. This Agreement is the second outer space convention that came into existence after the Outer Space Treaty 1967. It was opened for signature on 22 April 1968 in London, Moscow, and Washington D.C., and entered into force on 3 December 1968.[181] Historically, its development and negotiation took place between the years of 1962 and 1967.

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[178] The Vienna Convention on the Law of Treaty establishes a general rule of the treaty in its Article 34: *'A treaty does not create either obligations or rights for a third state without its consent'*; However, it also prescribes an exception to the general rule in its Article 38: *'Nothing in Articles 34 to 37 precludes a rule set forth in a treaty from becoming binding upon a third State as a customary rule of international law, recognised as such'*. See *supra* notes 174; Lyall, Francis, *supra* note 46, at 173-174.

[179] More information on customary rules of international law is available in Chapter 2 of the thesis (2.3.2(b) The Customary International Law). Gál, Gyula, *supra* note 46, at 44; Matte, Nicolas Mateesco, *supra* note 117, at 13; Vereshchetin, V.S. and Danilenko, Gennady M., *supra* note 119, at 25; Lyall, Francis, *supra* note 46, at 54 and 71.

[180] Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968) (Resolution 2345 (XXII)), adopted on 19 December 1967, opened for signature on 22 April 1968, entered into force on 3 December 1968. 19 UST 7570, 672 UNTS 119, TIAS 6599. In this section, all Articles, unless specified otherwise, refer to those in the Rescue Agreement 1968. The Treaty's full text is available at United Nations, United Nations Treaties and Principles on Outer Space, *supra* note 161, at 9.

[181] The depositories of the Agreement are: Russian Federation, United Kingdom of Great Britain and Northern Ireland, and United States of America. See United Nations, United Nations Treaties and Principles on Outer Space and Related General Assembly Resolutions, *supra* note 162, at 2.

However, the idea of its formulation and its expediency was first raised by the *ad hoc* Committee of COPUOS as early as 1959.[182] On 20 March 1962, the idea of its formulation progressed further when the USSR proposed the elaboration of an international agreement on searching for and rescuing space objects in the case of emergency landings, as well as rescuing astronauts.[183] A draft agreement on the subject matter was submitted on 9 March 1964 by the USSR delegation in the COPUOS, followed by the submission of the draft agreement by the United States, Australia, and Canada in the same year.[184] Finally, on 15 December 1967, the draft was finalised and agreed upon by the COPUOS Legal Sub-Committee.

The Rescue Agreement 1968 indeed developed from Article V and Article VIII of the Outer Space Treaty 1967.[185] The Agreement consists of 10 Articles which are mainly concerned with the rescue and return of personnel of a spacecraft (Article 1-4), the rescue and return of a space object and its component parts (Article 5), and the meaning of launching authority (Article 6). This Agreement establishes rules and obligations to assist and rescue astronauts in the event of accident, distress or any emergency landing where the state parties need to perform necessary actions after the space objects have been launched and their components returned to earth, having made an emergency landing. Since the states parties agree to regard

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[182] *Report of the Ad Hoc Committee on the Peaceful Uses of Outer Space,* UN Doc. A/4141, 14 July 1959, at Part II, para. 74 (page 17) and Part III, para. 21 (page 24), as cited in Jasentuliyana, Nandasiri, *supra* note 54, at 33; See also Bogaert, E.R.C. van, *supra* note 104, at 99; Gál, Gyula, supra note 46, at 97-98; Roy S. K. Lee, "Assistance to and Return of Astronauts and Space Objects", *Manual on Space Law*, *Vol.1,* Eds., Jasentuliyana, Nandasiri and Roy S.K. Lee, (Alphen aan den Rijn: Sijhoff & Noordhoff, 1979), at 55.

[183] Newspaper "Pravda", 22 March 1962, as cited in Kolosov, Y, "Background and History of the Outer Space Treaties", (1998) 40 *IISL Colloquium on the Law of Outer Space*, at 438.

[184] Kolosov, Y, *id*., at 438.

[185] Article V, Outer Space Treaty 1967, states: *'States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.*
In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.
States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the Moon and other celestial bodies, which could constitute a danger to the life or health of astronauts'.
Article VIII, Outer Space Treaty 1967, mentions: *'A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return'.*

astronauts as envoys of mankind,[186] under the Rescue Agreement astronauts are entitled to special care, including receiving all possible assistance in the event of accident, distress, and emergency landing. They are also eligible for a safe and prompt return to the state of registry of the space object.[187]

With regard to Malaysia's position on the Rescue Agreement**,** similar to the Outer Space Treaty Malaysia is only a signatory state to the Rescue Agreement without ratification.[188] Malaysia signed the Agreement in London on 29 July 1968.[189] The legal effect of signing the Rescue Agreement without ratification is similar to Malaysia's position in relation to the Outer Space Treaty, meaning that Malaysia has only given preliminary consent to be bound by the Agreement without legally binding force.[190] Relying on Article 34 of the Vienna Convention on the Law of Treaty, as a non-party state to the Rescue Agreement Malaysia in general is not bound by any rules and obligations stated therein. Even if an emergency landing by personnel from a spacecraft were to occur, or any space object or its components were to land on Malaysia's territory or elsewhere, or even were it to receive information on the tragedy, Malaysia would indeed have no obligation to transmit the information, or provide any rescue or assistance, or even return the personnel or the space object to the launching state as required by the Agreement.[191]

As a signatory state to the Rescue Agreement, it does not only signify Malaysia's preliminary consent to the Agreement. However, Malaysia has also obligation to observe certain requirement (as provided under Article 18 of the Vienna Convention on the Law of Treaty) that is to avoid any actions that might contravene with the objective and purpose of Rescue Agreement. Moreover, Malaysia could be bound as well by the rules stipulated in the Rescue Agreement when these rules become part of the international custom as prescribed in Article 38 of the Vienna Convention on the Law of Treaty.

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[186] UNGA Res. 1962, *supra* note 81, para.9; see also Article V (Outer Space Treaty 1967).
[187] *Id*. See also Article 1-4 (Rescue Agreement 1968); Gál, Gyula, *supra* note 46, at 98; Matte, Nicolas Mateesco, *supra* note 117, at 95.
[188] The Rescue Agreement 1968 has 92 states parties and 24 signatory states. See http://www.oosa.unvienna.org/oosatdb/showTreatySignatures.do, accessed: 13 May 2014.
[189] See http://www.fco.gov.uk/resources/en/pdf/pdf9/fco_ref_sl_rescueastronauts, accessed: 13 May 2014.
[190] For information on the effect of signing the Outer Space Treaty without ratification, refer to Chapter 2 of the thesis (2.3.3(a) The Outer Space Treaty 1967).
[191] The rules of providing rescue and assistance in the event of distress and emergency landing are mentioned in Article 1 – Article 5, Rescue Agreement 1968.

From a moral perspective, it is strongly suggested that Malaysia should provide full cooperation in performing these obligations as they are a matter of ethics and humanity.[192] As mentioned earlier, Malaysia is one of countries that have launched various satellites into orbit, as well its national into outer space.[193]As a considerably active participant in space activities, Malaysia may well experience such space disasters involving its satellites and astronauts due to outer space's hostile environment. It is irrefutable that outer space activities are exposed to various risks and dangers especially when personnel and space objects are sent into outer space. This was proved when a number of states experienced various kinds of space disasters and emergency landings involving loss of life[194] and space object destruction.[195] Since the Rescue Agreement deals with the rules of rescuing astronauts in distress and the return of space objects to their launching states, it seems that the Rescue Agreement is crucial to countries such as Malaysia.

As a matter of fact, due to Malaysia present position in respect of this Agreement, astronauts, space personnel, and space objects belonging to a non-party state such as Malaysia are not entitled to any special care and assistance as provided under the Rescue Agreement in the event of accident or distress unless such assistance is given on a humane basis. Thus, such circumstances might impose an insecure situation in terms of the possible treatment afforded the astronauts and space objects of the non-party state. Based on these arguments, it is suggested that Malaysia and other non-party states that intend to become further involved in space activities consider the ratification of the Rescue Agreement as soon as possible. By becoming parties to it, they will ensure that their astronauts, space personnel, and space objects are entitled to special attention and treatment in the event of accident, distress, and

[192] See Preamble of the Rescue Agreement 1968; see also Bogaert, *supra* note 104, at 103-106.
[193] The discussion is available in Chapter 1 of the thesis (1.4 Application and Activities).
[194] The first fatal accident involving astronauts was the tragedy at Cape Kennedy on 27 January 1967 where Roger Chaffee, Virgil Grissom and Edward White, the American astronauts, died in a fire during a ground test of an Apollo spaceship. On 24 April 1967, the Soviet cosmonaut Vladimir Komarov was killed during the landing of Soyuz-1 due to the defective functioning of the parachute system. The cosmonauts Georgi Dobrovolski, Victor Patseyev and Vladislav Volkov were killed on 29 June 1971 when their returning spacecraft, Soyuz-II, lost air pressure. See Gal, Gyula, "Observations on the Rescue Agreement", in *Maintaining Outer Space for Peaceful Uses, Proceedings of a Symposium Held in The Hague, March 1984,* Ed. Jasentuliyana, Nandasiri, (Japan: The United Nations University, 1984), at 93; Davies, J.K., *supra* note 164, at 192-197; Bogaert, *supra* note 104, at 99.
[195] An example of space object disaster is the Geosynchronous Satellite Launch Vehicle (GSLV D3), India's rocket; it was carrying a communication satellite but failed to reach orbit and fell into the Bay of Bengal. See, http://www.space-travel.com/reports/India_To_Return_To_Russian_Boosters_After_Falilikapuiled_Rocket_Launch_999.html, accessed: 21 April 2010.

emergency landing. Furthermore, these countries will have an excellent chance of recovering their objects and components when they land in another country's territory.

(c) The Liability Convention 1972

The Convention on International Liability for Damage Caused by Space Objects, commonly known as the 'Liability Convention 1972'[196], was adopted by the United Nations General Assembly in its Resolution 2777 (XXVI)[197] on 29 November 1971. It was opened for signature on 29 March 1972 in London, Moscow, and Washington D.C., and entered into force on 1 September 1972.[198] Historically, the consideration and negotiation of the Liability Convention took place between 1963 and 1972, while its elaboration was conducted in 1964, particularly after the United States, Hungary and Belgium submitted their drafts. In 1967, the submission of the draft was then followed by India and Italy.[199] The text of the Liability Convention was finally approved in 1971 in the 26th session of the General Assembly.

As its title suggests, the Liability Convention, which consists of 24 articles, deals with the states' liability for damage caused by space objects. Its purpose is to elaborate international rules and procedures with respect to liability for damage caused by space objects as well to ensure the prompt payment and equitable compensation to victims of damage caused by space objects. The Liability Convention indeed developed from general principles envisaged in Resolution 1962 (XVIII),[200] as well as Article VI and Article VII of the Outer Space Treaty.[201] Article VI of the Outer Space Treaty recognizes the right of governmental agencies

[196] Convention on International Liability for Damage Caused by Space Objects (1972) (Resolution 2777 (XXVI)), adopted on 29 November 1971, opened for signature on 29 March 1972, entered into force on 1 September 1972. 24 UST 2389, 961 UNTS 187, TIAS 7762. In this section, all Articles, unless specified otherwise, refer to those in the Liability Convention 1972. The Convention's full text is available at United Nations, *supra* note 161, at 13.

[197] UNGA Res. 2777 (XXVI), on the 'Convention on International Liability for Damage Caused by Space Object', adopted on 29 November 1971.

[198] The depositories of the Liability Convention are: the Russian Federation, United Kingdom of Great Britain and Northern Ireland, and United States of America. See United Nations, United Nations Treaties and Principles on Outer Space and Related General Assembly Resolutions, *supra* note 162, at 3.

[199] Kolosov, Y, *supra* note 183, at 439.

[200] UNGA Res. 1962 (XVIII), *supra* note 81. Para.5 reads: '*States bear international responsibility for national activities in outer space, whether carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried on in conformity with the principles set forth in the present Declaration ...'*

[201] Article VI (Outer Space Treaty 1967) provides: *'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 the governmental agencies or by non-governmental entities, and for assuring that*

as well non-governmental agencies to conduct outer space activities, provided that the states parties shall bear international responsibility for their national activities in outer space. Apart from that, it is a requirement that outer space activities of the non-governmental agencies first obtain authorization from the state parties and thus continue supervising such outer space activities.[202] Article VII of the Outer Space Treaty, in fact, further confirms that states parties will be internationally liable for damage caused by their space objects, or by their component parts, regardless of whether the damage happens on the earth, in air space, or in outer space.[203] The legal rules were then elaborated further in Article II of the Liability Convention which specifies that a launching state shall be liable to pay compensation for damage caused by its space object.[204] The liability of such a launching state can be either absolute or on proof of fault. The liability is absolute when the damage caused by the space object happens on the surface of the earth or to the aircraft in flight.[205] However, in the event of damage caused elsewhere, the state shall be liable only if the damage is due to its own fault or the fault of persons for whom it is responsible.[206]

With respect to Malaysia's position regarding the Liability Convention 1972, Malaysia is currently a non-party state to the Convention.[207] Malaysia has neither signed nor ratified the Convention. This means that, as a non-party to the Convention, Malaysia at this point is not bound to fulfil any rights and obligations stated therein. However, it should be noted that

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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. When activities are carried on in outer space, including the Moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.'

Article VII (Outer Space Treaty 1967) mentions: '*Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the Moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air space or in outer space, including the Moon and other celestial bodies.*'

[202] See Article VI, Outer Space Treaty 1967, *id*.

[203] See Article VII, Outer Space Treaty 1967, *supra* note 201.

[204] Article II, Liability Convention 1972 specifies: *'A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight'*.

[205] See *id*.

[206] Article III, Liability Convention 1972 prescribes: *'In the event of damage being caused elsewhere than on the surface of the Earth to a space object of one launching state or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or persons for whom it is responsible'*.

[207] The Liability Convention 1972 has 90 states parties and 23 signatory states. See http://www.oosa.unvienna.org/oosatdb/showTreatySignatures.do, accessed: 13 May 2014.

Malaysia may still be bound to fulfil those rights and obligations on certain other grounds in public international law: when the rules of the Treaty have passed into customary rules of international law.[208] The international custom may serve as a source of legal rights and obligations of states whenever they are not parties to the treaties.[209] Apart from that, the principle of responsibility of a state for her national activities in outer space is envisaged in the United Nations General Assembly Resolution 1962[210] by which the legal effect of the resolution is binding upon the states when it is classified as 'evidence of general practices accepted as law' under the international custom.[211] This circumstance, in fact, may also create the international obligation that a state should fulfil. Since Malaysia is regarded as one of the more active participants in outer space activities, it is strongly suggested that Malaysia give serious consideration to signing and ratifying the Liability Convention 1972. By doing so, Malaysia would become and be viewed as a responsible participant in outer space activities, especially in terms of international liability for damage caused by space objects.

(d) The Registration Convention 1975

The Convention on Registration of Objects Launched into Outer Space, commonly known as 'Registration Convention 1975'[212], was adopted by the United Nations General Assembly in its Resolution 3235 (XXIX)[213] on 12 November 1974. It was opened for signature on 14

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[208] Article 38, Statute of the International Court of Justice (hereinafter, 'Statute of the ICJ') stipulates: *'The Court, whose function is to decide in accordance with international law such disputes as are submitted to it, shall apply:*

(a) International conventions, whether general or particular, establishing rules expressly recognised by the contesting states;

(b) International custom, as evidence of a general practice accepted as law;

(c) The general principles of law recognised by civilised nations;

Subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.'

[209] Shaw, Malcolm N., *supra* note 116, at 24. More information is available in Chapter 2 of the thesis (2.3.2 (b) Customary International Law).

[210] See *supra* note 81.

[211] Article 38, Statute of the International Court of Justice, *supra* note 111. A discussion on the legal effect of United Nations resolutions and declarations is available in Ogunbanwo, Ogunsola B., *International Law and Outer Space Activities,* (The Hague: Martinus Nijhoff Publishers, 1975), at 15-16.

[212] Convention on Registration of Objects Launched into Outer Space (1975) (Resolution 3235 (XXIX)), adopted on 12 November 1974, opened for signature on 14 January 1975, entered into force on 15 September 1976. 28 UST 695, 1023 UNTS 15, TIAS 8480. In this section, all Articles, unless specified otherwise, refer to those in the Registration Convention 1975. The Convention full text is available at United Nations, *supra* note 161, at 22.

[213] UNGA Res. 3235 (XXIX), on 'Convention on the Registration of Objects Launched into Outer Space', adopted on 12 November 1974.

January 1975 in New York, and entered into force on 15 September 1976.[214] It was the fourth outer space convention to come into existence after the Outer Space Treaty, the Rescue Agreement, and the Liability Convention. The Registration Convention 1975 deals mainly with the system of registration of objects launched into outer space. Originally, the system of the international registration of space objects was introduced by the General Assembly Resolution 1721 B (XVI) in December 1961.[215] The United Nations General Assembly had called upon those states that were launching objects into orbit or beyond to promptly furnish, on a voluntary basis, the related information to the UNCOPUOS. This was done through the United Nations Secretary-General for the purpose of registration of the objects launched. In such matters, the Secretary-General was requested to maintain a public registry, which was introduced in 1962, for the launching information furnished.[216] Historically, in 1968 a draft convention on registration of space objects was submitted by France to the Legal Sub-Committee of the UNCOPUOS. In 1972, it was then substituted by a joint Franco-Canadian draft.[217] Finally, in 1974 the Registration Convention was successfully adopted and consequently the submission of launching information for the purpose of registration of space objects becomes mandatory for all states parties to the Convention. It was then opened for signature in mid-January 1975.

The Registration Convention 1975 consists of 11 Articles. Among its main objectives is the establishment of a central register of objects launched into outer space. It is a mandatory basis system whereby the public registry shall be maintained and kept by the Secretary-General of the United Nations.[218] By introducing such a mandatory system of registration of objects launched into outer space, the Registration Convention assists the states parties in the identification of space objects. In accordance with this Convention, the launching states should furnish to the United Nations, as soon as practicable, the related information, including the name of the launching state, the designator of the space object or its registration number, the date and territory or location of launch, the basic orbital parameters such as

[214] The depository of the Registration Convention is the Secretary-General of the United Nations. See United Nations, *supra* note 162, at 3.
[215] UNGA Res. 1721 (XVI), on the 'International Co-operation in the Peaceful uses of Outer Space' adopted on 20 December 1961. See also Kolosov, Y, *supra* note 183, at 439.
[216] See http://www.oosa.unvienna.org/oosa/SORegister/regist.html, accessed: 13 May 2014.
[217] Kolosov, Y, *supra* note 183, at 439.
[218] See Article III, Registration Convention 1975.

apogee and perigee,[219] and the general function of the space object.[220] The Convention indeed gives the public full and open access to the information in this register.[221] Apart from that, the launching states also have an obligation to establish a national registry[222] at the national level, the contents and conditions of which will be determined by the state of registry itself.[223]

In terms of Malaysia's position with respect to the Registration Convention 1975, Malaysia is currently a non-party state to the Convention.[224] Malaysia has neither signed nor ratified the Convention. Even though Malaysia is not a party to the Convention, she is among the non-parties states that send information to the United Nations on their space objects launched into outer space.[225] The first information that Malaysia furnished was dated 18 January 2002, and it concerned its two satellites: MEASAT-2 and Tiungsat-1.[226] On April of the same year, other information was furnished by Malaysia on MEASAT-1.[227] Then, in 2005, Malaysia supplied a third piece of information, notifying that its satellite TiungSat-1 was no longer functional.[228] In 2007 Malaysia sent information on its satellite MEASAT-3.[229] Lastly, in 2010, Malaysia furnished information on MEASAT-3a, her latest communications satellite.[230] From the preceding facts, it is noted that, even though Malaysia is not a party to the Convention, she has made a full commitment to furnishing to the United Nations

[219] Apogee is the highest altitude above the earth's surface, in kilometres, and perigee is the lowest altitude above the earth's surface, in kilometres.
[220] See Article IV, Registration Convention 1975.
[221] See Article III, Registration Convention 1975.
[222] See Article II, Registration Convention 1975.
[223] *Id*.
[224] The Registration Convention 1975 has 57 states parties and 4 signatory states. See http://www.oosa.unvienna.org/oosatdb/showTreatySignatures.do, accessed: 13 May 2014.
[225] It is based on UNGA Res. 1721 B (XVI), on the 'International Co-operation in the Peaceful uses of Outer Space' adopted on 20 December 1961. Read also UNGA Res. 62/101, on the 'Recommendations On Enhancing The Practice Of States And International Intergovernmental Organizations In Registering Space Objects' adopted on 17 December 2007. The information provided by the non-party states to the Registration Convention regarding their objects launched into space, and such information received in accordance with the Convention requirements, is issued in the United Nations documents in the A/AC.105/INF series. See also http://www.oosa.unvienna.org/oosa/en/SORegister/docsstatidx.html, accessed: 13 May 2014.
[226] The detailed information is available in United Nations document symbol: A/AC.105/INF.406. See http://www.oosa.unvienna.org/oosa/Reports/inf406.html, accessed: 13 May 2014.
[227] See a note verbale, dated 17 April 2002. Available in the United Nations document symbol: A/AC.105/INF.407. Refer http://www.oosa.unvienna.org/oosa/Reports/inf407.html, accessed: 13 May 2014.
[228] See a note verbale, dated 18 August 2005. Available in the United Nations document symbol: ST/SG/SER.E/478. See http://www.oosa.unvienna.org/oosa/Reports/ser478.html, accessed: 13 May 2014.
[229] See a note verbale, dated 19 March 2007. Available in the United Nations document symbol: A/AC.105/INF.415. See http://www.oosa.unvienna.org/oosa/Reports/Regdocs/inf415.html, accessed: 13 May 2014.
[230] See a note verbale, dated 8 February 2010. Available in the United Nations document symbol: A/AC.105/INF.421. See http://www.oosa.unvienna.org/oosa/en/Reports/Regdocs/inf421.html, accessed: 14 May 2014.

information on the space objects launched into space. Therefore, it is suggested that Malaysia seriously consider becoming a party to the Registration Convention.

(e) The Moon Agreement 1979

The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, commonly known as 'Moon Agreement 1979'[231], was adopted by the United Nations General Assembly in its Resolution 34/68[232] on 5 December 1979. It was opened for signature on 18 December 1979 in New York, and entered into force only five years later, on11 July 1984.[233] Historically, the legal principles relating to the Moon were pointed out in 1961 in the UNGA Resolution 1721 (XVI).[234] In 1963, the legal rules concerning the Moon also emerged in the Test Ban Treaty,[235] the UNGA Resolution 1884 (XVIII),[236] and Resolution 1962 (XVIII)[237]. Then, in 1967, they were given stronger force in the Outer Space Treaty 1967.[238] Afterwards, they were also mentioned in, among others, the Rescue Agreement 1968[239], and the Liability Convention 1972.[240] Specifically, an intense concern over the Moon and its related matters was expressed by the members of UNCOPUOS, especially with respect to its natural

[231]Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1979) (Resolution 34/68), adopted on 5 December 1979, opened for signature on 18 December 1979, entered into force on 11 July 1984. 18 ILM 1434, 1363 UNTS 3. In this section, all Articles, unless specified otherwise, refer to those in the Moon Agreement 1979. The Convention's full text is available at United Nations, *supra* note 161, at 27.

[232] UNGA Res. 34/68, on 'Agreement Governing the Activities of States on the Moon and Other Celestial Bodies', adopted on 5 December 1979.

[233] The depository of the Moon Agreement is Secretary-General of the United Nations. See United Nations, *supra* note 162, at 3.

[234] The resolution states that the outer space and celestial bodies are free for exploration and use by all states in conformity with international law and are not subject to national appropriation. It appears that the term 'celestial bodies' used in the Resolution included the Moon. See UNGA Res. 1721 (XVI), *supra* note 167; see also Jasentuliyana, Nandasiri and Roy S.K. Lee, eds., *Manual on Space Law*, *Vol. 1*, (Alphen aan den Rijn: Sijhoff & Noordhoff, 1979), at 253.

[235] The Test Ban Treaty forbids the carrying out of nuclear test explosions beyond the limits of the atmosphere including outer space. See Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water 1963, opened for signature on 5 August 1963, entered into force on 10 October 1963. 480 UNTS 43.

[236] The Resolution called upon the state parties not to station in outer space any objects of mass destruction and not to install nuclear or mass destruction weapons on celestial bodies. See UNGA Res. 1884 (XVIII), on the 'Question of General and Complete Disarmament', adopted on 17 October 1963. See also Jasentuliyana, Nandasiri and Roy S.K. Lee, *supra* note 234.

[237] The legal principles provided in the Resolution are implicitly or explicitly applicable to the Moon and other celestial bodies. See UNGA Res. 1962 (XVIII), *supra* note 81. Refer also Jasentuliyana, Nandasiri and Roy S.K. Lee, *supra* note 234.

[238] The Treaty, *inter alia*, mentions that outer space, including the Moon and other celestial bodies, is not subject to any form of national appropriation. Refer Article II, Outer Space Treaty 1967.

[239] The Agreement states: '*any other place not under the jurisdiction of any state'*, which may include the Moon and other celestial bodies. See Articles 3, 4, and 5, Rescue Agreement 1968, *supra* note 180.

[240] The Convention covers damage caused elsewhere than on the surface of the earth, which probably refers to the Moon. See Article III and Article IV, Liability Convention 1972, *supra* note 196.

resources. This started after the successful landing by the United States on the Moon in 1969. To deal with such matters, within one year, in July 1970, Argentina submitted to the UNCOPUOS a proposal entitled 'Draft Agreement on the Principles Governing Activities in the Use of the Natural Resources of the Moon and Other Celestial Bodies'.[241] Then, in May 1971, the Soviet Union proposed to the UNGA an item entitled 'Preparation of an International Treaty Concerning the Moon'.[242]

A month later, on 4 June 1971, the Soviet Union submitted a draft moon treaty.[243] Consequently, on 29 November 1971 the UNGA adopted Resolution 2779 (XXVI)[244] and called the COPUOS to consider, as a matter of priority, the question of a moon treaty. Finally, in 1979, a draft entitled 'Agreement Governing the Activities of States on the Moon and Other Celestial Bodies' was completed and submitted to the UNGA. It was then approved on 5 December 1979 in the Resolution 34/68[245].

The Moon Agreement 1979 consists of 21 Articles. One of its purposes is to prevent the Moon from becoming an area of international conflict.[246] In general, the Agreement comprises general principles and specific provisions forming the permissible activities on the Moon and other celestial bodies. It makes a declaration that the Moon should be used for the benefit of all states and all peoples of the international community.[247] Indeed, the provisions of the Moon Agreement largely reaffirm and expand the application of the principles in the Outer Space Treaty 1967. For instance, the Moon and other celestial bodies should be used exclusively for peaceful purposes,[248] the Moon and other celestial bodies shall be the province of all mankind[249]; in addition, the United Nations Secretary-General should be notified about states' outer space activities,[250] and there are provisions on the environment.[251]

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[241] UN Doc. A/AC. 105/C.2/L.71 and Corr.1 (1970).
[242] It was proposed as an inclusion in the agenda of the twenty-sixth session of the UNGA, and was done through a letter dated 27 May 1971. See Tronchetti, Fabio, *The Exploitation of Natural Resources of the Moon and Other Celestial Bodies: A Proposal for a Legal Regime,* Ph.D. dissertation, (Leiden, 2008), at 22.
[243] UN Doc. A/8391 and Corr. 1, 4 June 1971. See also Jasentuliyana, Nandasiri and Roy S.K. Lee, *supra* note 234, at 255.
[244] UNGA Res. 2779 (XXVI), on 'Preparation of an International Treaty Concerning the Moon', adopted on 29 November 1971.
[245] See UNGA Res. 34/68, *supra* note 232.
[246] See the preamble, Moon Agreement 1979.
[247] See Article 4, Moon Agreement 1979.
[248] See Article IV (Outer Space Treaty 1967); and Article 3 (Moon Agreement 1979).
[249] See Article I (Outer Space Treaty 1967); and Article 4 (Moon Agreement 1979).
[250] See Article XI (Outer Space Treaty 1967); and Article 5 and Article 9 (Moon Agreement 1979).
[251] See Article IX (Outer Space Treaty 1967); and Article 10 (Moon Agreement 1979).

In relation to Malaysia's position regarding the Moon Agreement 1979, Malaysia is not currently a party to the Agreement. However, it is suggested that Malaysia consider becoming a party to the Agreement even though the number of states that have ratified the Moon Agreement is low compared to the other outer space treaties.[252] Although the Moon Agreement is vague and unclear in certain provisions, it still provides a legal framework to deal with the exploitation of lunar resources.

2.3.4. Malaysia and the Five Outer Space Principles

Apart from the five outer space conventions mentioned earlier, the UNGA also adopted five other international outer space principles governing space-related activities. All of these five sets of legal principles were voted for by Malaysia.[253] Thus, Malaysia has an international obligation to adhere to the legal rules and principles stated therein. This part aims to highlight general ideas of the five outer space principles that Malaysia should observe, including their historical background in brief.

(a) Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, 1963

Historically, the development of outer space legal rules evolved in stages with the submission of many documents to the UNCOPUOS. Among the most important documents submitted is a draft Declaration of the Basic Principles Governing the Activities of States Pertaining to the Exploration and Use of Outer Space.[254] This is a proposal for a set of legal rules intended to govern the activities of states conducted or to be conducted in outer space. At first, the draft

[252] Only 13 states are parties to the Moon Agreement 1979. They are Australia, Belgium, Lebanon, Mexico, Pakistan, Peru, Kazakhstan, Austria, Chile, Morocco, Netherlands, the Philippines, and Uruguay. Four other states - France, Guatemala, India and Romania - are signatory states only. These numbers are small compared to the other outer space treaties: for the Outer Space Treaty 1967, there are 101 states parties and 26 signatory states. For the Rescue Agreement 1968, there are 92 states parties and 24 signatory states. The Liability Convention 1972 has 90 states parties, and 23 signatory states. And the Registration Convention 1975 has 57 states parties and 4 signatory states. See http://www.oosa.unvienna.org/oosatdb/showTreatySignatures.do, accessed: 13 May 2014.

[253] See http://www.angkasa.gov.my/?q=polisi/undang-undang-angkasa, accessed: 13 May 2014.

[254] It was proposed by the USSR and submitted in the year of 1962. See A/AC.105/C.2/L.1. See also Kopal, Vladimir, "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, New York, 19 December 1966", *Audio-visual Library of International Law*, http://untreaty.un.org/cod/avl/ha/tos/tos.html, accessed: 13 May 2014.

did not receive full support from the members of the UNCOPUOS. Nevertheless, it was successfully negotiated in 1963.[255] Consequently, in the same year, inspired by the great prospect of human exploration and use of outer space and celestial bodies, UNCOPUOS took a significant step forward when the UNGA approved the 'Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, 1963' (hereinafter 'the Declaration of Legal Principles 1963') in its Resolution 1962 (XVIII)[256]. It was voted for by consensus on 13 December 1963 by the state members of the United Nations, including Malaysia.[257]

In the progress of outer space legal rules, the Declaration of Legal Principles 1963 is considered vital since it outlined a set of general principles to guide the states in the exploration and use of outer space. These principles have, in fact, characterized the legal status of outer space and celestial bodies, as well the scope of liability of states for their activities in outer space. In regard to its nature, the Declaration of Legal Principles 1963 was different from the other United Nations outer space principles since it formed the basis of, directed the formation of and paved the way for the adoption of the first outer space treaty: the Outer Space Treaty 1967.[258] The legal rules prescribed in the Declaration of Legal Principles 1963, with some amendments and additions, formed and shaped the creation of the Outer Space Treaty 1967 which then provided the foundation of the international legal order for the exploration and use of outer space and celestial bodies.

Since Malaysia has accepted the Declaration of Legal Principles 1963, she is bound under the international obligation to adhere to all rules and principles stipulated therein. In total, nine principles are prescribed in the Declaration of Legal Principles 1963, as follows: (1) The exploration and use of outer space shall be carried out for the benefit and interest of all mankind; (2) Outer space and celestial bodies are free for exploration and use by all states on the basis of equality and in accordance with international law; (3) Outer space and celestial bodies are not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means; (4) The states' activities in the exploration and use of outer space shall be carried on in accordance with international law; (5) States bear

[255] *Id*.
[256] UNGA Res. 1962 (XVIII), *supra* note 81.
[257] See *supra* note 253.
[258] The Outer Space Treaty 1967, *supra* note 161.

international responsibility for national activities in outer space, and the activities of non-governmental entities shall require authorization and continuing supervision by the state concerned; (6) In the exploration and use of outer space, states shall be guided by the principle of cooperation and mutual assistance and shall conduct their activities with due regard for the corresponding interests of other states; (7) The state on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and personnel thereon while in outer space; (8) Each state which launches or procures the launching of an object into outer space, and each state from whose territory or facility an object is launched, is internationally liable for damage to a foreign state or to its natural or juridical persons by such object or its component parts on the Earth, in air space, or in outer space; (9) States shall regard astronauts as envoys of mankind in outer space, and shall render to them possible assistance in the event of accident, distress, or emergency landing on the foreign state territory or on the high seas.

(b) Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, 1982

Another set of outer space-related principles voted for by Malaysia is 'Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, 1982' (hereinafter 'Principles on Direct Broadcasting by Satellite (DBS) 1982').[259] In view of the fact that broadcasting[260] is one of the most useful and well-known space applications besides telecommunications, remote sensing, and others, the UNGA foresaw the need for legal rules to govern the use by states of artificial earth satellites for international direct television broadcasting. In December 1968, the UNGA approved the establishment of a Working Group on Direct Broadcasting Satellites (hereinafter 'Working Group on DBS') by UNCOPUOS to study and report on the technical feasibility of communication by direct broadcast from satellites and on the current and foreseeable

[259] In this section, all Principles, unless specified otherwise, refer to those in the 'Principles on DBS 1982'. See also *infra* note 264.

[260] Broadcasting is a distribution of audio and video content to a dispersed audience *via* radio, television or other digital transmission media. Among the famous form of electronic broadcasting is satellite television. Information on Malaysia's involvement in the broadcasting activities is available in Chapter 1 of the thesis (1.4.1. Telecommunication and Broadcasting). See http://en.wikipedia.org/wiki/Broadcasting, accessed: 13 May 2014.

developments in the field.[261] In August 1972, the Soviet Union submitted a draft 'Convention on Principles Governing the Use by States of Artificial Earth Satellites for Direct Television Broadcasting'. Three months later, on 9 November 1972, the UNGA adopted Resolution 2916 (XXVII)[262] which then stressed the necessity of elaborating the principles for international direct television broadcasting with a view to concluding an international agreement. This was done after taking into account that the operation of direct broadcasting satellite technology would have significant implications internationally, particularly in the political, economic, social, and cultural life of countries. Moreover, several experiments involving direct broadcasting satellites had been carried out, and systems were indeed operational in many countries and would also be commercialized. Therefore, action was taken by giving the task to the UNCOPUOS and its Legal Sub-Committee of Working Group on DBS to elaborate the principles. Then, in November 1976, the Resolution 31/8[263] accelerated such efforts by emphasizing the priority of the work.

At last, on 10 December 1982, in the belief that the formation of the principles for international direct television broadcasting would strengthen international cooperation as well as promote the purpose and principles of the United Nations Charter, the UNGA through Resolution 37/92[264] adopted the 'Principles on DBS 1982'. UNGA achieved this by a majority vote, instead of by consensus.[265] Malaysia was among the countries that voted for the Principles on DBS 1982.[266] The existence of the Principles on DBS 1982 has, in fact, filled the gaps and holes in the *corpus juris spatialis*.[267]

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[261] UNGA Res. 2453 (XXIII) on ''International Co-operation in the Peaceful uses of Outer Space', adopted on 20 December 1968. See also Traa-Engelman, H.L. van, *Commercial Utilization of Outer Space: Law and Practice,* (Dordrecht: Martinus Nijhoff, 1993), at 220.

[262] UNGA Res. 2916 (XXVII), on 'Preparation of an International Convention on Principles Governing the Use by States of Artificial Earth Satellite for Direct Television Broadcasting', adopted on 9 November 1972.

[263] UNGA Res. 31/8, on 'International Co-operation in the Peaceful Uses of Outer Space', adopted on 8 November 1976.

[264] UNGA Res. 37/92, on 'Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting', adopted on 10 December 1982.

[265] Traa-Engelman, H.L. van, *supra* note 261, at 222; see also Jasentuliyana, Nandasiri, *supra* note 54, at 42.

[266] See http://www.angkasa.gov.my/?q=polisi/undang-undang-angkasa, accessed: 13 May 2014.

[267] *Corpus juris spatialis* refers to the laws governing outer space and concerns notably three of the five UN treaties on outer space including the Outer Space Treaty 1967, the Liability Convention 1972, and the Registration Convention 1975. See Dunk, F.G. von der, "Fundamental Provisions for National Space Laws", *Proceedings of United Nations/Nigeria Workshop on Space Law, in Abuja, Nigeria, 21-24 November 2005* (Vienna: United Nations, 2006), at 261.

Since Malaysia has accepted the Principles on DBS 1982, she is bound to adhere to all rules prescribed by the Principles. In general, the Principles on DBS 1982 consists of 10 subheadings: (1) Purposes and objectives; (2) Applicability of international law; (3) Rights and benefits of states; (4) International cooperation; (5) Peaceful settlement of dispute; (6) State responsibility; (7) Duty and right to consult; (8) Copyright and neighbouring rights; (9) Notification to the United Nations; and (10) Consultations and agreement between States. Under those subheadings, the DBS Principles 1982 prescribes 15 legal principles related to international direct television broadcasting. Since Malaysia voted the DBS Principles 1982, she has an obligation to observe and abide by those principles. Among the principles prescribed are the following: (1) International direct television broadcasting by satellite should be carried out in a manner compatible with the sovereign rights of states (Principle 1); (2) The activities should promote the free dissemination and mutual exchange of information and knowledge in cultural and scientific fields, and assist in educational, social and economic development, particularly in the developing countries (Principle 2); (3) The activities should be carried out in a manner compatible with the development of mutual understanding and the strengthening of friendly relations and cooperation among all states (Principle 3); (4) The satellite broadcasting activities should be conducted in accordance with international law (Principle 4); (5) Access to satellite broadcasting technology should be available to all states without discrimination (Principle 5); (6) The activities should be based upon international cooperation, with special consideration for the needs of developing countries to use the technology for national development (Principle 6); and (8) States should bear international responsibility for the related activities carried out by them (Principle 8).

(c) Principles Relating to Remote Sensing of the Earth from Outer Space, 1986

Malaysia also voted for 'Principles Relating to Remote Sensing of the Earth from Outer Space, 1986' (hereinafter, 'the Principles on Remote Sensing 1986').[268] Besides broadcasting, remote sensing is another useful application of space activities. At present, such technology is common practice and manages to extensively improve the quality of life on earth. It helps to upgrade natural resources management, land use, and the protection of the human

[268] In this section, all Principles, unless specified otherwise, refer to those in the 'Principles on Remote Sensing 1986'. See also UNGA Res. 41/65, *infra* note 278.

environment.[269] In view of the great benefits gained from such technology and the possibility of potential misuse of the information gathered, the UNGA took an essential step towards establishing a set of legal principles governing the conduct of states in their remote sensing activities.

Historically, the process of negotiation of the legal rules took nearly 17 years to reach its conclusion. The first specific reference made to remote sensing by the UNGA was on 16 December 1969 in Resolution 2600 (XXIV).[270] This resolution urged, *inter alia*, the states members who possessed remote sensing capability to share it with others and to help explore the technology, including data analysis, its dissemination, and application. In July 1970, Argentina submitted a draft proposal agreement on 'activities carried out through remote-sensing satellite surveys of earth resources'.[271] One year later, in July 1971, an interdisciplinary 'Working Group of Remote Sensing of the Earth by Satellite' was established with the objective of promoting the use of space applications, including monitoring the earth's environment.[272] In 1973, a comprehensive Background Paper[273] on remote sensing was prepared. It contributed significantly to the development of further remote sensing legal rules. In November 1974, the UNGA made a recommendation to the Legal Sub-Committee of UNCOPUOS, through its Resolution 3234 (XXIX) of 12 November 1974,[274] to consider the legal implications of remote sensing of the earth from space. Consequently, on 10 February 1975 a new working group (Working Group III) on remote sensing was established and tasked with elaborating the principles governing remote sensing-related activities.[275] And on 18 November 1975, pursuant to Resolution 3388 (XXX),[276] the

[269] The remote sensing satellites manage to gather information on agriculture, including crop estimation, forestry, geography and mapping, geology and mineral resources, meteorology and weather forecasting, air and water pollution, and natural disasters, as well as carrying out military reconnaissance and verification of arms control agreements. Information on Malaysia's involvement in remote sensing activities is available in Chapter 1 of the thesis (1.4.2. Remote Sensing). See Gorove, Stephen, *Developments in Space Law: Issues and Policies,* Utrecht Studies in Air and Space Law, vol. 10, (Dordrecht: Martinus Nijhoff Publishers, 1991), at 293.

[270] UNGA Res. 2600 (XXIV), on 'International Co-operation in the Peaceful uses of Outer Space', adopted on 16 December 1969. See also Jasentuliyana, Nandasiri and Roy S.K. Lee, *supra* note 234, at 313.

[271] However, the discussion was postponed for various reasons. See UN Doc. A/AC.105/85, Annex II, at 2, 3 July 1970, as cited in *id*.

[272] UNGA Res. 2733 C (XXV), on 'International Co-operation in the Peaceful uses of Outer Space', adopted on 16 December 1970. See Jasentuliyana, Nandasiri and Roy S.K. Lee, *supra* note 234, at 313.

[273] "Background Paper by the Secretary-General Assessing United Nations Documents and Other Pertinent Data Related to the subject of Remote Sensing of the Satellite". UN Doc. A/AC.105/118, 12 June 1973, as cited in Jasentuliyana, Nandasiri and Roy S.K. Lee, *supra* note 234, at 314.

[274] UNGA Res. 3234 (XXIX), on 'International Co-operation in the Peaceful Uses of Outer Space', adopted on 12 November 1974.

[275] Jasentuliyana, Nandasiri and Roy S.K. Lee, *supra* note 234, at 314-315.

related subjects were treated as matters of high priority when the UNGA directed the Working Group to 'continue detailed legal consideration of remote sensing from space of the earth' and to 'proceed to drafting of principles in regard to those particular areas of the subject'. Again, in Resolution 31/8 of 8 November 1976,[277] the matter was given high priority with particular emphasis on the formation of draft principles. In late 1977, Resolution 32/196 (A) of 20 December 1977 gave special weight to further elaboration of the draft principles. After various efforts and negotiations, finally, on 3 December 1986, a set of legal principles, namely 'Principles Relating to Remote Sensing of the Earth from Outer Space, 1986' was approved unanimously by the UNGA and was adopted in its Resolution 41/65.[278] Malaysia was one of the countries that voted for the Remote Sensing Principles 1986.

The Principles on Remote Sensing 1986 comprises 15 legal principles. These principles are applicable only to the sensing of the earth's surface from outer space, and do not include sensing from air space.[279] The principles start with definitions of some legal terms including remote sensing, primary data, processed data, analysed information, and remote sensing activities (Principle I). Malaysia, as one of the countries that voted for the Remote Sensing Principles 1986, has to observe the legal rules stipulated therein. Several provisions aim at benefiting the developing countries like Malaysia; for instance, the remote sensing activities must be carried out for the benefit and in the interest of all countries, irrespective of their economic status and social or scientific and technological development, and the needs of the developing countries must be given particular consideration (Principle II). Other rules include the following: The promotion of international cooperation and the states' participation must be based on equitable and mutually acceptable terms (Principle V); Technical assistance must be available to the interested states (Principle VII); Activities in such areas must be coordinated (Principle VIII). Other provisions are rules relating to international law compliance (Principle III), promotion of protection of the earth's natural environment (Principle X), and protection of mankind from natural disasters (Principle XI).

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[276] UNGA Res. 3388 (XXX), on 'International Co-operation in the Peaceful Uses of Outer Space', adopted on 18 November 1975.
[277] See UNGA Resolution 31/8, *supra* note 263.
[278] UNGA Res. 41/65, on 'Principles Relating to Remote Sensing of the Earth from Space', adopted on 11 December 1986.
[279] See Principle I (a), Principles on Remote Sensing 1986.

(d) Principles Relevant to the Use of Nuclear Power Sources in Outer Space, 1992

'Principles Relevant to the Use of Nuclear Power Sources in Outer Space, 1992' (hereinafter, 'the Principles on Nuclear Power Sources 1992')[280] is another set of United Nations principles on outer space voted for by Malaysia. Aside from the use of solar energy to supply power to spacecraft, nuclear power has also proven essential and well suited to certain space missions.[281] However, nuclear-powered spacecraft present a danger in that, should they crash onto the earth's surface, they would expose the public and other living things including animals and plants to harmful radiation or radioactive material. Reconsidering such a risk, the UNGA urged that the use of nuclear power sources (hereinafter, the 'NPS') be based on a thorough safety assessment.[282] Thus, a set of principles was drafted to guide the states to ensure the safe use of NPS in outer space.

Matters related to NPS gained special attention in the United Nations as early as 1978 after the incident of the Soviet Cosmos 954 satellite.[283] In November 1978, as indicated in Resolution 33/16,[284] the UNCOPUOS was authorised by the UNGA to set up a working group of experts, namely the 'Working Group on the Use of Nuclear Power Sources in Outer Space', to study NPS matters. This Resolution also urged the launching states to inform the states concerned in the event of NPS spacecraft malfunctioning, particularly when there is a risk of radioactive material re-entering the earth's atmosphere.[285] In the first Working Paper on NPS, submitted in 1978, it was highlighted that the existing outer space international legal instruments should be examined with a view to recommending the necessary legal

[280] In this section, all Principles, unless specified otherwise, refer to those in the 'Principles on Nuclear Power Sources 1992'. See also UNGA Res. 47/68, *infra* note 288.
[281] For instance, a large-scale mission such as an expedition to the Moon or a manned mission to Mars requires nuclear power sources. Among the advantages of nuclear power if used in long-distance voyages are the saving of considerable funds and the shortening of interplanetary journeys. See Preamble of the 'Principles on Nuclear Power Sources 1992'. See also Zaitsev, Yury, "Nuclear Power in Space", *Space Daily*, 15 August 2007, http://www.spacedaily.com/reports/Nuclear_Power_In_Space_999.html, accessed: 13 May 2014.
[282] Preamble of the 'Principles on Nuclear Power Sources 1992'.
[283] On 24 January 1978, Cosmos 954, a Soviet nuclear-powered satellite, entered the earth's atmosphere and disintegrated. The crash emitted radioactive material over Canadian territory, including portions of the Northwest Territories, Alberta, and Saskatchewan. See http://www.hc-sc.gc.ca/hc-ps/ed-ud/event-incident/radiolog/index-eng.php, accessed: 16 November 2012; http://en.wikipedia.org/wiki/Kosmos_954, accessed: 13 May 2014.
[284] UNGA Res. 33/16, on 'International Co-operation in the Peaceful Uses of Outer Space', adopted on 10 November 1978.
[285] See *supra* note 283.

measures.[286] Then, in 1980, the Legal Sub-Committee of the UNCOPUOS started to review the outer space international law and determined the appropriateness of the law relating to NPS activities.[287] Many proposals and suggestions were presented through Working Papers submitted by states including Canada, Argentina, Chile, Brazil, and Nigeria. After holding many negotiations and debates, finally, on 14 December 1992, the UNGA adopted Resolution 47/68 which endorses a set of legal principles namely 'Principles Relevant to the Use of Nuclear Power Sources in Outer Space, 1992'.[288]

The Principles on Nuclear Power Sources 1992 comprises 11 principles. These principles are open for revision in view of the growth of nuclear power applications.[289] The legal rules stipulated in these Principles, to which Malaysia as one of the countries voting in favour must adhere, include the following: (1) The applicability of international law to outer space activities that involve the use of NPS (Principle 1); (2) The use of NPS is to be restricted to space missions which cannot be operated by non-nuclear energy sources (Principle 3); (3) Nuclear reactors may be operated on interplanetary missions in sufficiently high orbits, or in low-earth orbits if they are stored in sufficiently high orbits after the operational part of the mission (Principle 3, paragraph 2(a)); (4) Radioisotope generators should be designed and constructed to survive the heat and the re-entry aerodynamic forces without spreading radioactive material into the environment (Principle 3, paragraph 3(b)); (5) The launching state should conduct a thorough safety assessment with respect to the systems involved in the mission and the assessment result should be publicly available (Principle 4); (6) The launching state should notify the re-entry of the space object to the Secretary General and states concerned in the event of the space object malfunctioning with a risk of re-entry of radioactive materials onto the earth (Principle 5); (7) The launching state should provide assistance to eliminate any harmful effects caused by the re-entry (Principle 7); (8) The launching state is liable for any damage caused (Principle 9).[290]

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[286] A/AC.105/C.2/L.115 and A/AC.105/218, Annex IV as cited in Haanappel, P.P.C., "Nuclear Power Sources in Outer Space", (1985) 27 *IISL Colloquium on the Law of Outer Space* 215.
[287] Refer Resolution A/34/66, on 'International co-operation in the Peaceful Uses of Outer Space'. See also, *id*.
[288] UNGA Res. 47/68, on 'Principles Relevant to the Use of Nuclear Power Sources in Outer Space', adopted on 14 December 1992.
[289] *Id*.
[290] See also Article VII of the Outer Space Treaty 1967, and Article I(a), II and XII of the Liability Convention 1972.

(e) 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, 1996

The fifth set of outer space principles voted for by Malaysia is 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, 1996' (hereinafter 'the Declaration on Outer Space Benefits 1996').[291] It deals with international cooperation among states in the exploration and utilisation of outer space, and has proven to be fundamental due to the nature of activities in outer space. The Declaration on Outer Space Benefits 1996 is verifiably significant for space nations, particularly for the developing countries, in ensuring that space exploration and the application of space technology benefits all countries.[292]

International cooperation in outer space activities is indeed required by,[293] or reflected from the application of, Article 1 of the Outer Space Treaty 1967,[294] which stipulates that the exploration and use of outer space shall be carried out for the benefit and in the interest of all countries regardless of their degree of economic or scientific development. Nevertheless, it is believed that this Article is insufficient to ensure that the benefits of outer space exploration and its technology are shared equally by all countries.[295] This circumstance has caused dissatisfaction among the developing countries especially regarding the scope and pace of international cooperation in space activities. Therefore, efforts have had to be made to expand and further develop the scope of international cooperation in such activities.

In 1989, the Legal Sub-Committee of the UNCOPUOS placed on its agenda an item on 'Outer Space Benefits'.[296] It aimed to promote the principle of Article 1 of the Outer Space

[291] In this section, all sections, unless specified otherwise, refer to those in the 'Declaration on Outer Space Benefits 1996'. See also *infra* note 298.
[292] Jasentuliyana, Nandasiri, *supra* note 54, at 46.
[293] Jasentuliyana, Nandasiri, "Ensuring Equal Access to the Benefits of Space Technologies for All Countries", (1994) 10 (no.1) *Space Policy,* at 7.
[294] Article 1, Outer Space Treaty 1967 reads: *'The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interest of all countries irrespective of their degree of economic or scientific development, and shall be the province of all mankind'.*
[295] Jasentuliyana, Nandasiri, *supra* note 54, at 8.
[296] This happened in the 28th session of the Legal Subcommittee of UNCOPUOS; the item's full title was 'Consideration of the legal aspects related to the application of the principle that the exploration and utilization

Treaty 1967 that the exploration and use of outer space should be carried out for the benefit of all countries. This was done with the intention of codifying the rights and responsibilities of countries with respect to international cooperative space activities. In fact, a number of working papers were submitted to the Legal Sub-Committee sessions on the related issues including the question of access to the benefits of space technology and elaboration of principles to ensure international cooperation.[297] In 1995 a set of principles, which formed a foundation of the discussion, was presented in a joint Working Paper that was co-sponsored by several developing states.[298] After various debates and intensive discussions, and after several revisions and amendments were accomplished, finally, in June 1996, the Declaration on Outer Space Benefits 1996 was adopted by the UNCOPUOS through consensus. Then, on 13 December 1996, it was formally adopted by the UNGA in its Resolution 51/122.[299]

The Declaration on Outer Space Benefits 1996, which was desirous of facilitating the application of the rule of Article 1 of the Outer Space Treaty 1967, introduced eight declarations. This was done in order to further strengthen international cooperation to achieve efficient collaboration in outer space activities and for the mutual benefit and interest of all states involved. Such declarations, among others, include the following:[300] (1) International cooperation shall be conducted in accordance with the international law, and shall be carried out for the benefit and in the interest of all states, irrespective of their degree of economic, social or scientific and technological development, taking into particular account the needs of the developing countries; (2) States are free to determine aspects of their participation in international cooperation on an equitable and mutually acceptable basis; (3) All states, especially those with space capabilities, must contribute to promoting and fostering international cooperation on an equitable and mutually acceptable basis, particularly for the interest and benefit of the developing countries; (4) International cooperation must be conducted in the most effective and appropriate way by the countries involved; (5)

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of outer space shall be carried out for the benefit and in the interests of all states, taking into particular account the needs of developing countries'. Jasentuliyana, Nandasiri, *supra* note 54, at 7 and at 46.

[297] For more specific information, refer to Jasentuliyana, Nandasiri, "Article 1 of the Outer Space Treaty Revisited", (1989) 17 (no.2) *Journal of Space Law* 129; Jasentuliyana, Nandasiri, "Ensuring Equal Access to the Benefits of Space Technologies for All Countries", *supra* note 293, at 7.

[298] See Report of the 34th session of the Legal Sub-Committee, U.N. Doc. A/AC.105/607 of Apr. 19, 1995, Working Paper jointly co-sponsored by Brazil, Chile, Colombia, Egypt, Iraq, Mexico, Nigeria, Pakistan, Philippines, Uruguay and Venezuela as cited in Jasentuliyana, *supra* note 54, at 47.

[299] See UNGA Res. 51/122 on "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", adopted on 13 December 1996.

[300] For details, see *id.*

International cooperation should aim to: (a) promote space science and technological development, and its application; (b) foster the development of relevant and appropriate space capabilities; and (c) facilitate the exchange of expertise and technology among states. In respect of the above, since Malaysia has agreed to and accepted such a Declaration, she is bound to observe all those principles under her international obligation and commitment.

2.4. MALAYSIA AS A MEMBER OF INTERNATIONAL AND REGIONAL ORGANIZATIONS

Apart from signing and ratifying a number of outer space-related conventions, principles, and international agreements, Malaysia has also become a member of many international and regional organizations that relate to outer space activities. Thus, this section will concisely present a number of international and regional organizations of which Malaysia has become a member. This section is important in order to know the country's level of engagement in relation to regional and international space organizations.

2.4.1. International Level

Malaysia has become a member of various international organizations. This section will highlight a number of outer space-related organizations that Malaysia has joined as a member at the international level. These organizations include the following:

(a) United Nations Committee on the Peaceful Use of Outer Space (UNCOPUOS)

The United Nations Committee on the Peaceful Use of Outer Space (UNCOPUOS)[301] is the only committee of the UNGA which deals exclusively with international cooperation in the peaceful uses of outer space. At the very beginning, in 1958, the UNCOPUOS was established by the UNGA as an *ad hoc* Committee on the Peaceful Uses of Outer Space with the participation of 18 member states. This was established under the UNGA Resolution 1348 (XIII).[302] One year later, in 1959, this *ad hoc* Committee was then turned into a permanent

[301] UNCOPUOS website is available at http://www.oosa.unvienna.org/oosa/en/COPUOS/copuos.html, accessed: 13 May 2014.
[302] UNGA Res. 1348 (XIII), *supra* note 165.

Committee after its mandate was reaffirmed in the UNGA Resolution 1472 (XIV).[303] At that time its membership had increased to 24 members.[304]

The main missions of the UNCOPUOS include reviewing the scope of international cooperation in peaceful uses of outer space, and devising programmes on related fields to be undertaken under the auspices of the United Nations. Its other missions are to promote research and dissemination of information on outer space-related matters, and to study the legal problems arising from outer space exploration.[305] The UNCOPUOS has two standing subcommittees: (1) Scientific and Technical Subcommittee; and (2) Legal Subcommittee. They meet annually to discuss matters raised by the member states, as well to consider questions put before them by the UNGA.

With regard to the law-making process, the UNCOPUOS employs a unique process of consensus. This has indeed encouraged compromise and successfully accommodates the different interests of member states. The process of drafting international space law in fact involves time-consuming, general discussion, detailed negotiation, and editorial review. This is done through numerous formal and informal discussions, as well as consultation on bilateral and multilateral bases. Before the draft text reaches its final draft, it will go through several versions. If the text is agreed upon by consensus among the member states, the UNGA will then adopt a resolution containing the agreed text. In the case of a treaty, states can then decide whether to sign, ratify or accede to it, and the treaty will come into force in accordance with its provisions. If not, it will remain a declaration of legal principles adopted by the UNGA. Considering the benefits gained from the consensus procedure,[306] the United Nations attempts to arrive at decisions by consensus, failing which they may also resort to the majority vote system.[307]

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[303] UNGA Res. 1472 (XIV), *supra* note 166.
[304] See http://www.oosa.unvienna.org/oosa/en/COPUOS/members.html, accessed: 15 November 2012. See also Jasentuliyana, Nandasiri, *supra* note 54, at 23.
[305] See http://en.wikipedia.org/wiki/United_Nations_Committee_on_the_Peaceful_Uses_of_Outer_Space, accessed: 13 May 2014. See also UNGA Res. 1348 (XIII), *supra* note 165.
[306] Among the benefits is the fact that the process can be conducted with patience and not cut off suddenly by a vote which may defeat what might come to fruition; it also can ensure the maximum compliance by the members. For more details, see Galloway, Eilene, "Creating Space Law", in *Space Law: Development and Scope,* Ed., Jasentuliyana, Nandasiri, (London: Praeger, 1992), at 248.
[307] Jasentuliyana, Nandasiri, *supra* note 54, at 27-29.

As of 2013, the UNCOPUOS has 74 member states altogether, including Malaysia.[308] Actually, Malaysia joined the UNCOPUOS as a member in 1994 on a rotational basis. Malaysia, the Republic of Korea, Cuba and Peru indeed rotate seats every two years.[309] However, in 2001, the practice of sharing seats on a rotational basis was abolished by the UNGA. Thus, Malaysia and the three other aforementioned states became full members of the UNCOPUOS starting from 2001.[310] Malaysia, as a member of UNCOPUOS, can participate in the adoption of the UNGA legal rules either by consensus or by voting. Apart from this, it is also worth noting that a Malaysian woman, Prof. Datuk Dr. Mazlan Othman[311] has been entrusted with leading the United Nations Office for Outer Space Affairs (UNOOSA), a United Nations office responsible for promoting international cooperation in the peaceful uses of outer space. The UNOOSA serves as a secretariat for the UNCOPUOS,[312] and it is responsible to the UNGA for implementing outer space-related policies. It also conducts 'Programmes on Space Applications' and maintains the 'Register of Objects Launched into Outer Space'. Hence, as far as Malaysia's present commitment to the UNOOSA is concerned, it is evident that Malaysia has succeeded in gaining confidence and recognition from the world community in leading an important world organization in relation to outer space activities.

(b) International Telecommunication Union (ITU)

Acknowledging that states have the right to regulate their telecommunications, and considering the importance of telecommunications technology for preserving peace and achieving economic and social development, a group of countries embarked on various steps to establish the International Telecommunication Union (ITU).[313] The ITU was actually

[308] In 2012, Armenia, Costa Rica and Jordan have applied for membership of the Committee. See http://en.wikipedia.org/wiki/United_Nations_Committee_on_the_Peaceful_Uses_of_Outer_Space, accessed: 13 May 2014. See *supra* note 304.
[309] See UNGA Res. 49/33, on 'Enlargement of the Committee on the Peaceful Uses of Outer Space', adopted on 9 December 1994. See http://www1.umn.edu/humanrts/resolutions/49/33GA1994.html, accessed: 13 May 2014. See also *supra* note 304.
[310] See UNGA Res. 56/51, on 'International Cooperation in the Peaceful Uses of Outer Space', adopted on 10 December 2001. See also *supra* note 304.
[311] Prof. Datuk Dr. Mazlan Othman was given the post of Director of the UNOOSA twice: First, between the years of 1999 and 2002 and then from the year 2007 until the present. See http://www.oosa.unvienna.org/oosa/OOSA/heads.html, accessed: 13 May 2014.
[312] See http://www.oosa.unvienna.org/, accessed: 13 May 2014.
[313] ITU's official website is available at http://www.itu.int/, accessed: 13 May 2014. See *infra* note 314.

founded in 1865,[314] and it is the leading and oldest international organization in the United Nations family.[315] It deals with outer space-related activities, specifically information and communication technology issues.[316] The ITU is based in Geneva and headed by a Secretary-General.[317] One of the purposes of the establishment of the ITU is to maintain and extend international cooperation among members for the improvement and use of all kinds of telecommunications. Its other objective is to promote and offer various related technical assistance to developing countries.[318]

With regard to the ITU membership, it has 193 member states. Malaysia became a member of the ITU under the category of state membership on 3 February, 1958.[319] Under the sector membership, there are 625 members from various states including seven companies and two institutions of higher education from Malaysia.[320] Those companies are as follows: Altel Communications Sdn. Bhd., Celcom Axiata Berhad, Green Packet Berhad, MEASAT Satellite Systems Sdn Bhd, Maxis Mobile Sdn Bhd., Telekom Malaysia Bhd., and Axiata Group Berhad. The institutions of higher educations are: Universiti Sains Malaysia (USM) and Universiti Utara Malaysia (UUM).

On 2 January 2007, the ITU opened its Centre of Excellence at the Universiti Utara Malaysia (UUM), one of the Malaysian public universities.[321] The Centre is known as 'ITU-UUM Centre of Excellence', one of the ITU Centres of Excellence that operate in Asia.[322] The Centre aims to benefit the developing nations by providing executive training, research and

[314] Historically, the birth of ITU dates back to the establishment of the International Telegraph Union in 1865. In 1865, after a group of countries signed the International Telegraph Convention, the ITU was established under the name of International Telegraph Union. This name was used until 1932 when two agreements - International Telegraph Convention 1865 and International Radio Telegraph Convention 1906 - were merged into one agreement called International Telecommunication Convention. The ITU was then widely known as International Telecommunication Union. For more information on the historical development of ITU, refer to Lyall, Francis, "The International Telecommunication Union and Development", (1994) 22 *Journal of Space Law* 23. See also "International Telecommunication Union (ITU)," *Gale Encyclopaedia of E-Commerce 2002*, http://www.encyclopedia.com, accessed: 10 December 2010.

[315] It became a specialized agency of the United Nations in 1947. See Lyall, Francis, "The International Telecommunication Union and Development", *id*., at 25.

[316] See http://www.itu.int/en/history/Pages/default.aspx, accessed: 13 May 2014.

[317] A Secretary-General is elected to a four-year term by the member states at the Plenipotentiary Conference.

[318] Article 1, ITU Constitution.

[319] See http://en.wikipedia.org/wiki/International_Telecommunication_Union#Membership, accessed: 13 May 2014.

[320] See http://www.itu.int/members/index.html; http://www.itu.int/online/mm/scripts/mm.list?_search=SEC&_languageid=1#total, accessed: 13 May 2014.

[321] The official website of UUM is available at http://www.uum.edu.my, accessed: 13 May 2014.

[322] Other Centres, for instance, are located in Thailand, Korea, Iran and Pakistan. See *supra* note 313.

development, advisory services, and an information, communication, and technology (ICT) referral centre. Its major focus is on ICT developments covering wireless technology, broadband applications, network management, operations, applications, services and others.[323]

The ITU's core legal framework is governed by the Constitution and Convention of the ITU.[324] They were adopted by the Additional Plenipotentiary Conference[325] at Geneva in 1992, and were opened for signature on 22 December 1992.[326] They entered into force on 1 July 1994, thereby abrogating and replacing the earlier Convention, namely the International Telecommunication Convention of Nairobi 1982.[327] Since their adoption in 1992, the ITU Constitution and Convention have been amended by a number of Plenipotentiary Conferences. The latest version of the Constitution and the Convention of the ITU incorporates the 2010 amendments as adopted by the Plenipotentiary Conference held at Guadalajara, Mexico, in October 2010. This amendment entered into force on 1 January 2012.[328] Apart from this amendment, the Constitution and Convention of ITU and their respective annexes also incorporate a number of earlier amendments adopted by other Plenipotentiary Conferences such as the Plenipotentiary Conference of Kyoto 1994, Plenipotentiary Conference of Minneapolis 1998, Plenipotentiary Conference of Marrakesh 2002, and Plenipotentiary Conference of Antalya 2006.[329] The 2014 Plenipotentiary Conference will be held in Busan, Republic of Korea.[330]

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[323] See http://www.uum.edu.my/w10/index.php?option=com_content&view=article&id=277:itu-uum-and-the-digital-gap-in-rural-areas&catid=62, accessed: 19 November 2012.

[324] The full text of the Constitution and Convention of the ITU is available at the *Collection of the Basic Texts of the International Telecommunication Union adopted by the Plenipotentiary Conference,* Edition 2011, (Geneva: ITU, 2011). Also available at http://www.itu.int/net/about/basic-texts/index.aspx, accessed: 13 May 2014.

[325] The Plenipotentiary Conference is the top policy-making body and the supreme organ of the ITU. It is the only body with the power to amend the Constitution and Convention of the ITU. It is also the key event at which the ITU member states decide on the future role of the organization, and determine the organization's ability to influence and affect the development of information and communication technology. See Article 1, ITU Convention. See also, http://www.itu.int/plenipotentiary/2010/index.html, accessed: 13 May 2014.

[326] See Article 58 (1), ITU Constitution.

[327] See Article 58 (2), ITU Constitution.

[328] See ITU, Final Acts of the Plenipotentiary Conference Guadalajara, 2010, available at http://www.itu.int/pub/S-CONF-ACTF-2010/en, and message from the ITU Secretary-General in Collection of the Basic Texts of the International Telecommunication Union, *supra* note 324. See also http://www.itu.int/plenipotentiary/2010/index.html, accessed: 13 May 2014.

[329] Explanatory Notes in Collection of the Basic Texts of the International Telecommunication Union, *supra* note 324. The details of all ITU Plenipotentiary Conferences are available at http://www.itu.int/en/history/plenipotentiaryconferences/Pages/ListofPlenipotentiaryConferences.aspx, accessed: 13 May 2014.

[330] It will be held on 20 October – 7 November 2014. See http://www.itu.int/en/plenipotentiary/Pages/default.aspx, accessed: 27 June 2013.

The Constitution of the ITU consists of nine chapters. The Constitution prescribes the ITU's basic provisions, such as purposes of its establishment, composition, and structure of the Union, rights and obligations of member parties, legal instruments, and many others.[331] It also establishes the ITU's three main sectors and their different spheres, as well as prescribing their functions and structures. These three sectors are as follows:[332] (1) Radio communication ('ITU-R'), which is responsible for managing the international radio-frequency spectrum and satellite orbit resources;[333] (2) Standardization ('ITU-T'), entrusted with fulfilling the ITU purposes with respect to telecommunication standardization;[334] and, (3) Development ('ITU-D'), established to assist the spread of equitable, sustainable and affordable access to ICT technologies.[335] There is also a specific chapter on general provisions relating to telecommunications, such as the right of the public to use international telecommunications services, the right to stop or suspend the services, clauses on secrecy of international correspondence, priority of telecommunications concerning threats to life, and government telecommunications.[336] Other chapters deal with special radio provisions,[337] relations with the United Nations and other international organizations, and relations with non-member states.[338] The ITU Convention comprises six chapters and is designed to complement the ITU Constitution. It prescribes, among other things, matters relating to the functioning of the Union[339] including clauses on its election, conferences and assemblies, its council, and its coordination committee. Other chapters deal with specific provisions regarding conferences and assemblies,[340] operation of telecommunication services,[341] arbitration and amendment,[342] and others.[343]

[331] Chapter 1, ITU Constitution.
[332] See http://www.itu.int/net/about/index.aspx, accessed: 13 May 2014.
[333] Chapter II, ITU Constitution, and also Section 5, ITU Convention.
[334] Chapter III and Article 1, ITU Constitution, and Section 6, ITU Convention.
[335] Chapter IV, ITU Constitution, and Section 7, ITU Convention.
[336] Chapter VI, ITU Constitution.
[337] Chapter VII, ITU Constitution.
[338] Chapter VIII, ITU Constitution.
[339] Chapter I, ITU Convention.
[340] Chapter II, ITU Constitution.
[341] Chapter V, ITU Convention.
[342] Chapter VI, ITU Convention.
[343] Chapter IV, ITU Convention.

(c) International Telecommunications Satellite Organization (ITSO)

International Telecommunication Satellite Organization (ITSO)[344], previously abbreviated to 'INTELSAT', is an intergovernmental organization established to ensure that communications by means of satellites are available to the world's nations on a global and non-discriminatory basis. The Organization was formed on 20 August 1964 initially under the name of INTELSAT. Its establishment resulted from the willingness of nations to join the United States to establish a commercial communications satellite system.[345] The Organization is headquartered in Washington D.C. and currently has 149 member states including Malaysia.[346]

The establishment of the INTELSAT, as a matter of fact, took place three years after the UNGA adopted an important resolution, Resolution 1721 (XVI)[347] on 20 December 1961, which prescribed that 'communication by means of satellites should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis'. Such a creation has, indeed, incorporated the rule set out in the Resolution and also the rule in Article I of the Outer Space Treaty 1967[348] that further states that 'outer space shall be used for the benefit and in the interest of all countries'. From 1964 to 2001, INTELSAT was an intergovernmental consortium that owned and managed a constellation of communications satellites and provided international broadcasting services.[349] By 2001, INTELSAT was reported as having over 100 member states.[350]

The Organization underwent an important restructuring in 2001. Specifically, the restructuring involved the privatization of INTELSAT, which took place on 18 July 2001. This was done in order to secure the long-term viability of its communication system in a market characterized by increasing competition, fast-paced innovations, and rising capital

[344] ITSO's official website is available at http://www.itso.int/, accessed: 13 May 2014.
[345] See http://www.itso.int/index.php?option=com_content&view=article&id=486&Itemid=206&lang=en, accessed: 13 May 2014.
[346] See http://www.itso.int/index.php?option=com_content&view=article&id=486&Itemid=1&lang=en/, accessed: 13 May 2014.
[347] UNGA Res. 1721 (XVI), *supra* note 167.
[348] The Outer Space Treaty 1967, *supra* note 161.
[349] Its first communication satellite known as Intelsat I (nicknamed 'Early Bird') was launched and placed in geostationary orbit on 6 April 1965. This was the world's first communication satellite. See http://www.intelsat.com/about-us/history/intelsat-1960s.asp, accessed: 20 November 2012.
[350] See *id*.

costs, and in order to attract private investment.[351] Two levels of restructuring were involved: intergovernmental level and operating level. At the intergovernmental level, it was structured into two organs: (1) Assembly of Parties, comprising the 149 member countries including Malaysia; and (2) an Executive Organ, headed by a Director General. Meanwhile, at the operating level, a commercial and pro-competitive company named Intelsat Ltd was then created.[352] This company is a private satellite communication service provider under the supervision of the Organization. It aims are to operate and control the satellite system as well as providing space segment capacity in a manner consistent with the core principles of global coverage and connectivity, lifeline connectivity and non-discriminatory access.[353] To fix these purposes, INTELSAT then transferred its global satellite system, including the geostationary-orbital locations, and the brand-name of 'Intelsat' to Intelsat Ltd. As a result of this transfer, its global communication network, which comprised 19 satellites in 2001, has expanded to 53 satellites through new launches and acquisitions.[354] As of March 2011, Intelsat Ltd operates a fleet of 52 communication satellites, which is the world's largest fleet of commercial satellites.[355]

With respect to the treaty agreement, the Organization is governed by the 'Agreement Relating to the International Telecommunications Satellite Organization' (hereinafter, the 'Agreement Relating to the ITSO').[356] The Agreement was opened for signature on 20 August 1971 and entered into force two years later on 12 February 1973. Malaysia ratified the Agreement on the date of its conclusion, which was 20 August 1971.[357] The Agreement encompasses 21 Articles and deals mainly with the establishment of the Organization.[358] It prescribes the Organization's main purpose and core principles, as well as the types of public telecommunications services covered.[359] It also provides, among other things, the location of its headquarters and its privileges, exemptions, and immunities.[360] Apart from that, the

[351] See *supra* note 344.
[352] Intelsat Ltd is headquartered at Luxembourg. The website of the company is available at http://www.intelsat.com/, accessed: 13 May 2014.
[353] See *supra* note 344.
[354] *Id*.
[355] See http://en.wikipedia.org/wiki/Intelsat, accessed: 13 May 2014.
[356] See http://www.itso.int/images/stories/Treaty/itso%20agreement%20booklet%20format-efs.pdf, accessed: 13 May 2014.
[357] See http://www.minbuza.nl/en/Key_Topics/Treaties/Search_the_Treaty_Database?isn=002791, accessed: 2 November 2012.
[358] See Article II, the Agreement Relating to the ITSO.
[359] See Articles III, and IV, Agreement Relating to the ITSO.
[360] Article XIII, Agreement Relating to the ITSO.

Agreement sets out the rights and obligations of states parties, the Organization's structure, its financial principles, power of supervision, juridical personality capacity, and others.[361] Furthermore, the Agreement emphasizes the mode of settlement of disputes between the parties regarding their rights and obligations under this Agreement.[362]

(d) International Mobile Satellite Organization (IMSO)

International Mobile Satellite Organization (IMSO)[363] is another international organization dealing with outer space-related activities. It is an intergovernmental organization responsible for overseeing certain public satellite safety and security communication services provided via Inmarsat satellites.[364] It is headquartered in London. At present, IMSO has 98 member countries, and Malaysia joined as a member on 12 June 1986.[365]

Historically, the origin of IMSO can be traced back to the formation of the International Maritime Satellite Organization (INMARSAT). The establishment of INMARSAT in 1976, similarly to INTELSAT, is based on the UNGA Resolution 1721(XVI) which prescribes that 'communication by means of satellites should be available to the nations of the world as soon as practicable on a global and non-discriminatory basis'.[366] It also responds to the rule in Article I, Outer Space Treaty 1967, stressing that 'outer space shall be used for the benefit and in the interest of all countries'.[367]

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[361] See Article XI, Article VIII, Article VII, Article V, and Article VI, Agreement Relating to ITSO.
[362] See Article XVI, and Annex A, Agreement Relating to the ITSO. Annex A is about 'Provisions on Procedures Relating to Settlement of Dispute' and consists of 14 articles.
[363] IMSO official website is available at http://www.imso.org/, accessed: 27 November 2012.
[364] Currently there are four constellations with a total of 11 satellites: (1) Inmarsat-2 series (There four satellites, but only Inmarsat-2 F2 still continue in service (launch date: 8 March 1991); (2) Inmarsat-3 series (five satellites: Inmarsat-3 F1 (3 April 1996), Inmarsat-3 F2 (6 September 1996), Inmarsat-3 F3 (18 December 1996), Inmarsat-3 F4 (3 June 1997), Inmarsat-3 F5 (4 February 1998). They are expected to remain in operation until 2018); (3) Inmarsat-4 series (four satellites: Inmarsat-4 F1 (11 March 2005), Inmarsat-4 F2 (8 November 2005), Inmarsat-4 F3 (18 August 2008), Inmarsat-4A F4/Alphasat (25 July 2013). They are expected to continue service until the early-2020s); (4) Inmarsat-5 series/Global Xpress (five satellites: Inmarsat-5 F1 (8 December 2013). The second and third are expected to be deployed by end of 2014. The fourth is expected from Boeing for delivery in late 2016. They are projected to have a commercial life of 15 years). For more information, refer to http://www.inmarsat.com/about-us/our-satellites/, accessed: 2 May 2014; read also "First Global Xpress Satellite Successfully completes In-Orbit Testing", *Inmarsat Press Releases,* http://www.inmarsat.com/press-release/first-global-xpress-satellite-successfully-completes-orbit-testing/, accessed: 13 May 2014.
[365] Refer to http://www.imso.org/member_states.asp, accessed: 13 May 2014.
[366] UNGA Res. 1721 D (XVI), "International Co-operation in the Peaceful uses of Outer Space", adopted on 20 December 1961. See also Paragraph 1, English Text of the IMSO Convention, *infra* note 381.
[367] See *supra* note 161. See also Paragraph 2, *id*.

The INMARSAT was established under the auspices of the International Maritime Organization (IMO)[368] by the Convention on the International Maritime Satellite Organization signed in London on 3 September 1976.[369] The original purpose of its establishment was to create a global mobile satellite communications system for maritime communications sectors. The system thereby assists in reducing distress and improving safety of life at sea, management of ships, maritime public correspondence services, and radio determination capabilities.[370] Despite all this, the INMARSAT has, indeed, further extended its services by providing aeronautical and land mobile satellite communications, including aeronautical satellite communications for air traffic management, aircraft operational control, and radio determination services.[371] Consequently, in December 1994, the name 'International Maritime Satellite Organization' or 'INMARSAT' was changed to 'International Mobile Satellite Organization', abbreviated to 'Inmarsat'. Even though such amendment did not formally enter into force, the new name of Inmarsat was used thereafter, including in the restructuring of the Organization's documentation.[372]

After around twenty years of successful operation, Inmarsat then decided to challenge the rapidly growing competition from the private providers of satellite communications services.[373] Therefore, in April 1999 Inmarsat underwent an important restructuring resulting in conversion of the Organization into a private company. Consequently, the Inmarsat business was split into two parts: (1) Inmarsat Ltd;[374] and (2) the IMSO. The effect of such restructuring led to the transfer of the Inmarsat assets, its commercial operations and its interests without restriction on the new commercial company of Inmarsat Ltd. Meanwhile,

[368] IMO, formerly known as the Inter-Governmental Maritime Consultative Organization (IMCO), was established in Geneva in 1948. The name was changed to IMO in 1982. It is a specialised agency of the United Nations. Its primary purpose is to develop and maintain a comprehensive regulatory framework for shipping including safety, environmental concerns, legal matters, technical cooperation, maritime security and shipping efficiency. See http://en.wikipedia.org/wiki/International_Maritime_Organization, accessed: 13 May 2014.
[369] See http://en.wikipedia.org/wiki/International_Mobile_Satellite_Organization, accessed: 13 May 2014.
[370] See Paragraph 4, Preamble of the English Text of the IMSO Convention, *infra* note 381. See also Diederiks-Verschoor, I.H.Ph. and V.Kopal, *An Introduction to Space Law*, 3rd Revised Edition, (The Netherlands: Kluwer Law International, 2008), at 62. See also http://www.imo.org/About/Conventions/ListOfConventions/Pages/Convention-on-the-International-Maritime-Satellite-Organization.aspx, accessed: 13 May 2014.
[371] See Paragraph 5, Preamble of the English Text of the IMSO Convention, *infra* note 381.
[372] See Paragraph 6, Preamble of the English Text of the IMSO Convention, *infra* note 381.
[373] See http://www.imso.org/history_UK.asp, accessed: 5 April 2011.
[374] Its website is available at http://www.inmarsat.com/, accessed: 13 May 2014.

the provisions of the Global Maritime Distress and Safety System (GMDSS) services[375] and adherences to the other public interests have been secured by the IMSO.[376]

Since the restructuring process, the IMSO has become a supervisory body with the task of overseeing Inmarsat Ltd to ensure that it continues to meet its public services obligations. Such services include obligations relating to maritime safety within the GMDSS for ships and aircraft at no charge, as well continuing to provide global, regional and domestic satellite services, especially maritime, aeronautical, land mobile and navigation services.[377] Other public services offered are distress alerting, search-and-rescue coordinating communications, maritime safety information broadcasts, and others. Furthermore, the IMSO acts as coordinator of the International Long Range Identification and Tracking of Ships (LRIT), a system for global identification and tracking of ships.[378] The IMSO is also responsible for guaranteeing that the services provided by the company are free from any discrimination and available in a peaceful way to all persons, as well as ensuring that the principles of fair competition are observed.[379] The IMSO operates through the Assembly of Parties, its Advisory Committee, and a small Directorate headed by a Director General.[380]

With respect to its treaty agreement, the IMSO is governed mainly by the Convention on the International Mobile Satellite Organization (IMSO Convention).[381] It was formerly called the

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[375] GMDSS is an internationally agreed set of safety procedures, types of equipment, and communication protocols used to increase safety, and make it easier to rescue distressed ships, boats and aircraft. See http://en.wikipedia.org/wiki/Global_Maritime_Distress_Safety_System, accessed: 13 May 2014.

[376] See Paragraph 7, Preamble of the English Text of the IMSO Convention, *infra* note 381.

[377] Information on privatisation of Inmarsat is available in Sagar, D., "The Privatisation of Inmarsat", *Proceedings 41st Colloquium* (Melbourne, 1998), at 205-223. Read also Sagar, D., "The Privatisation of INMARSAT: Special Problems", *International Organisations and Space Law, Proceedings of the Third ECSL, Colloquium, Perugia, Italy, 6-7 May 1999,* Ed., Harris, R.A., (ESA/ESTEC, 1999), at 127, also available at http://articles.adsabs.harvard.edu//full/1999ESASP.442..127S/0000127.000.html, accessed: 30 November 2012. See also Diederiks-Verschoor, I.H.Ph. and V.Kopal, *supra* note 370, at 62.

[378] LRIT of ships is an international system established on 19 May 2006 by the International Maritime Organization. It applies to certain types of ships such as all passenger ships, including high-speed craft. The rule is that the ship must report its position to its flag administration at least four times a day. Most vessels set their existing satellite communication systems to make these reports automatically. See http://en.wikipedia.org/wiki/Long_Range_Identification_and_Tracking, accessed: 13 May 2014. See also Articles 4 and 7, English Text of the IMSO Convention, *supra* note 381.

[379] See http://www.imo.org/About/Conventions/ListOfConventions/Pages/Convention-on-the-International-Maritime-Satellite-Organization.aspx, accessed: 13 May 2014. See also Articles 3 and 4, English Text of the IMSO Convention, *infra* note 381.

[380] See Articles 8, 9, 10, 11, and 12, English Text of the IMSO Convention, *infra* note 381.

[381] See English Text of the IMSO Convention Amended as Adopted by the Twentieth Session of the IMSO Assembly Provisionally Applied from 6 October 2008. The document is available at http://www.imso.org/pdfs/Public/Basic%20Documents/Convention/IMSO%20CONVENTION%20-%20ENGLISH.pdf, accessed: 13 May 2014.

Convention on the International Maritime Satellite Organization, established in London and opened for signature on 3 September 1976.[382] In 2008, amendments were made to the IMSO Convention with the aim of extending the supervisory functions of the IMSO to all new potential satellite providers of GMDSS services in the future. Malaysia is one of the 97 countries that became a party to the IMSO Convention. Malaysia acceded to the Convention on 12 June 1986, and on the same date it entered into force. The Convention consists of 22 articles dealing essentially with the formation of IMSO. It specifies, among other things, the IMSO's primary purpose, its other functions, power of supervision of GMDSS, the right to enter into LRIT Service Agreement, and other contractual relationships.[383] It also prescribes the IMSO organizational structures with their functions, powers and procedures. The mode of dispute settlement between parties suggested by the Convention is negotiation. [384]

From the preceding passage, it can be observed that Malaysia has participated at the international level and become a member of various global outer space-related bodies. This situation may reflect Malaysia's commitment and dedication to the growth and progress of outer space-related activities.

2.4.2. Regional Level

Apart from being a member of various international organizations, Malaysia has also joined a range of regional bodies concerned with outer space-related activities. These regional bodies include the following:

(a) Asia-Pacific Telecommunity (APT)

Asia-Pacific Telecommunity (APT)[385] is a regional organization that manages information and communication technology for member countries in the Asia Pacific region. It was founded and established in Bangkok in July 1979.[386] The APT operates in conjunction with

[382] See http://www.imso.org/member_states.asp, accessed: 13 May 2014.
[383] See Articles 3, 4, 5, and 7, English Text of the IMSO Convention, *supra* note 381.
[384] See also Articles 9, 10, 11, 12 and 17, English Text of the IMSO Convention, *supra* note 381.
[385] The official website of APT is available at http://www.aptsec.org/, accessed: 13 May 2014.
[386] The establishment was a joint initiative between the United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) and the International Telecommunication Union (ITU). See also *infra* note 390. See http://www.aptsec.org/APT-Introduction, accessed: 13 May 2014.

telecommunication service providers, communication equipment manufacturers, and research and development organizations, specifically in areas of information, communication, and innovation technologies.[387]

The APT comprises three principal organs: (1) General Assembly; (2) Management Committee; and (3) Secretariat. It is led by a Secretary General.[388] The objectives of the APT are to promote the expansion of telecommunication services and information infrastructure, and maximize the benefits of information, communication and technology for the welfare of the regional community. It also aims to develop regional cooperation in common-interest areas such as radio communications, and standards development. The APT also aims to encourage technology transfer, human resource development and exchange of information for a balanced development of telecommunications, services, and information infrastructure in the region.[389]

Malaysia joined APT on 1 July 1979. APT membership is indeed open to any state in the Asia-Pacific region that is a member of United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP).[390] As well as the aforesaid membership of states, the APT also offers also an Associate Membership[391] and an Affiliate Membership[392]. Among the affiliated members of the APT from Malaysia are Telekom Malaysia Bhd[393], TIME dotcom Sdn. Bhd.[394], Measat Satellite Systems Sdn. Bhd,[395] and Allied Digital Infonet Bhd.[396] Those who become members of the APT will enjoy benefits such as the privilege of participating in APT seminars, meetings, workshops and training courses. In addition, members from

[387] *Id*.
[388] The present Secretary General of APT is Mr Toshiyuki Yamada. See http://www.aptsec.org/APT-Organ, accessed: 13 May 2014.
[389] See http://www.aptsec.org/APT-Objectives, accessed: 13 May 2014.
[390] UN ESCAP is the United Nations body serving the regional development of the Asia-Pacific region. It aims to encourage economic cooperation among its member states. The UN ESCAP has a membership of 62 Governments including 53 member states and 9 Associate members (Malaysia joined UN ESCAP on 17 September 1957). It was established in Shanghai, China, in 1947. Currently, it has its headquarters in Bangkok, Thailand, and is headed by an Executive Secretary, Dr Shamshad Akhtar of Pakistan. See its official website http://www.unescap.org/; see also http://www.unescap.org/about/member-states, both accessed: 13 May 2014.
[391] Associate Membership is open to any territory, part or group of territories within the Asia-Pacific region that is an associate member of UN ESCAP. http://www.aptsec.org/become-members, 13 May 2104.
[392] Affiliate Membership is open to any enterprise, agency, institute, organization, association, or other undertaking entity or participant, whether private or government-owned, active in telecommunication services or information infrastructure. See, *id*.
[393] The joining date was 19 May 1994. See http://www.aptsec.org/affiliatemember, accessed: 13 May 2104.
[394] The joining date was 8 August 1995. See *id*.
[395] The joining date was 31 May 2007. See *id*.
[396] The joining date was 27 March 2009. See *id*.

developing countries are eligible for fellowships to attend APT meetings and training courses. The members are also provided with free publications such as reports from meetings and seminars, yearbooks, and an annual newsletter.[397]

(b) Asia-Pacific Regional Space Agency Forum (APRSAF)

Asia-Pacific Regional Space Agency Forum (APRSAF)[398] is another space-related body in which Malaysia participates at regional level. APRSAF was established in 1993 mainly with the purpose of strengthening and enhancing the activities related to outer space in the Asia-Pacific, specifically through the cooperation of the participating countries.[399]

The aim of the establishment of the APRSAF is, among other things, to provide opportunities to gather together the representatives of various space agencies and international organizations in the Asia-Pacific region. Its other objectives include exchanging views, opinions and information on national programs and space resources of each participating country. The participants will also have the opportunity to discuss the possibilities of future cooperation amongst the space technology developers and users that might bring benefits to each of them.[400] Indeed, APRSAF consists of four working groups:[401] (1) Earth Observation Working Group; (2) Communication Satellite Applications Working Group; (3) Space Environment Utilization Working Group; and (4) Space Education and Awareness Working Group. The Earth Observation Working Group's task is to exchange knowledge on earth observation activities, and to promote the use of such technologies for climate change mitigation and other things. The task of the Communication Satellite Applications Working Group is to discuss digital-divide issues, popularise broadband services, and promote the new communication satellite applications, including tele-education and tele-medicine, in the Asia-Pacific region.[402] The Space Environment Utilization Working Group aims, among other things, to promote the utilization of the space environment.[403] Lastly, the Space Education and Awareness Working Group targets the use of space materials to enhance young people's

[397] See http://www.aptsec.org/Members-benefits, accessed: 14 May 2014.
[398] APRSAF official website is available at http://www.aprsaf.org/, accessed: 14 May 2104.
[399] See http://www.aprsaf.org/about/, accessed: 14 May 2014.
[400] *Id*.
[401] See https://www.aprsaf.org/working_groups/about/, accessed: 14 May 2014.
[402] See APRSAF leaflet (English), at 6, at http://www.aprsaf.org/about/leaflet.php, accessed: 14 May 2014.
[403] *Id*.

education, as well as providing education and training opportunities for them in space science and technology.[404]

APSRAF has a membership of 472 organizations from 42 various countries and regions, and 27 international organizations.[405] Malaysia is one of the participating countries, and at least 16 Malaysian governmental agencies and local organizations have joined the APSRAF. They include Astronautic Technology (M) Sdn. Bhd. (ATSB), the National Space Agency of Malaysia (ANGKASA), Malaysian Meteorological Service (MMS), Malaysian Remote Sensing Agency (Remote Sensing Malaysia), Malaysian Agricultural Research and Development Institute (MARDI) and others.[406] APRSAF holds an annual meeting jointly organized by the Ministry of Education, Culture, Sports, Science and Technology, Japan (MEXT), and the Japan Aerospace Exploration Agency (JAXA), along with organizations from the host countries. In fact, thus far Malaysia has twice been appointed a host country to organize the meeting. The first was during the APRSAF 8th session meeting held in Kuala Lumpur in 2001. This event was jointly organized with the Malaysian Ministry of Science, Technology and the Environment (MOSTE) and the Malaysian Centre for Remote Sensing (MACRES).[407] The second was the APRSAF 19th session meeting held on 11-14 December 2012, also in Kuala Lumpur. The event was jointly organized with the Malaysian Ministry of Science, Technology and Innovation (MOSTI) and the Malaysian National Space Agency (ANGKASA).[408]

(c) Commonwealth Telecommunications Organization (CTO)

Commonwealth Telecommunications Organization (CTO)[409] is one of the largest institutions within the Commonwealth of Nations[410] and has existed since 1901. It is headquartered in

[404] See *supra* note 402, at 7.
[405] The fact is as of March 2014. See http://www.aprsaf.org/participants/, accessed: 14 May 2014.
[406] Other parties include the Malaysian Science and Technology Information Centre (MASTIC), Ministry of Science, Technology and Innovation (MOSTI), University of Malaya (UM), University Sains Malaysia (USM), Universiti Malaysia Sarawak (UNIMAS), Universiti Teknologi Malaysia (UTM), Universiti Teknologi Mara (UiTM), Multimedia University (Cyberjaya Campus), National Security Division of the Prime Minister's Department, Earth Observation Center, and Elite Solutions. See http://www.aprsaf.org/participants/countries/malaysia.php, accessed: 14 May 2014.
[407] See http://www.aprsaf.org/annual_meetings/aprsaf8/meeting_details.php, accessed: 14 May 2014.
[408] See http://www.aprsaf.org/annual_meetings/aprsaf19/meeting_details.php, accessed: 14 May 2014.
[409] The official website of the CTO is available at http://www.cto.int/, accessed: 14 May 2014.
[410] The Commonwealth of Nations is commonly referred to as the Commonwealth. It was formerly known as the British Commonwealth. It is an intergovernmental organization comprising 53 independent sovereign states.

London. It aims, *inter alia*, to help bridge the digital divide and achieve social and economic development within the Commonwealth and non-Commonwealth countries, especially in food and agriculture sectors (e-nutrition), education (distance learning), health (telemedicine), e-government and e-commerce sectors. This is achieved by delivering to the developing countries knowledge-sharing programmes in the use of information and communication technologies in areas such as telecommunications, information technologies, broadcasting, and the Internet.[411] Another mission of CTO is to offer the highest-quality programmes for capacity development, knowledge-sharing, and information services to member countries.

The CTO is governed by a constitution, namely the Constitution of the Commonwealth Telecommunications Organization.[412] Other rules and procedures governing the CTO are specified in CTO Rules of Procedure[413] and the CTO Ethical Framework.[414] The Constitution and Rules were adopted in 2002, while the Ethical Framework was adopted in 2012. The CTO is ruled by a Council made up of representatives from the governments of full member countries, one from each.[415] The Council meets annually in one of the member countries to discuss and evaluate the past year's progress and set the subsequent year's targets. At this meeting, a Chairperson and two Vice-Chairpersons are elected.[416]

CTO membership is open to Commonwealth Nations and also to those directly involved in telecom and information, as well as communication technology businesses of the Commonwealth Nations. Three types of memberships are offered:[417] (1) Country Membership; (2) Sector Membership; and (3) Programme for Development and Training Membership. Country Membership is given to the government of any Commonwealth

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All those states, except Mozambique and Rwanda, were formerly part of the British Empire. Its headquarters are in London. The Head of the Commonwealth is Queen Elizabeth II. The member states cooperate within the framework of common values including the promotion of democracy, human rights, good governance, rule of law, individual liberty, free trade, fight against poverty and disease, environmental sustainability, and others. Its official website is available at http://www.thecommonwealth.org/; see also http://en.wikipedia.org/wiki/Member_states_of_the_Commonwealth_of_Nations; http://thecommonwealth.org/member-countries, both accessed: 14 May 2014.

[411] See http://www.cto.int/Default.aspx?tabid=54, accessed: 4 December 2012.

[412] The full text is available at http://www.cto.int/about-the-cto/our-organisation/constitution-and-rules/, accessed: 14 May 2014.

[413] The text is available at *id*.

[414] The full text is available at *id*.

[415] See *infra* note 417, and 418.

[416] See http://www.cto.int/about-the-cto/our-organisation/executive-committee/, accessed: 14 May 2014.

[417] See http://www.cto.int/membership/our-members/, accessed: 14 May 2014.

member country wishing to become a full member country of the CTO.[418] Malaysia is one of the Commonwealth countries that have become members of the CTO under the Country Membership. Sector Membership is available to any business and private sector, non-Commonwealth governments, international development agencies, academic institutions and non-governmental organizations. Benefits offered to members of the CTO include one free delegate place at CTO events, discounted delegate places in addition to the free place, speaking opportunities at the CTO events, and many others.[419] Programme for Development and Training Membership is a unique low-cost membership programme that provides needs-based professional training and capacity-building courses on telecommunications policy, regulations, technologies, and telecom business management. The Programme for Development and Training members automatically gain Sector Membership. Telekom Malaysia Berhad (TM Malaysia)[420] is one of the Programmes for Development and Training partners of the CTO.

(d) The Association of South East Asian Nations (ASEAN) Subcommittee on Space Technology and Applications (SCOSA)

Malaysia is also a member of the ASEAN Subcommittee on Space Technology and Application (SCOSA).[421] SCOSA is an upgraded version of ASEAN Experts Group on Remote Sensing (AEGRS).[422] It is one of the ASEAN implementing bodies under the ASEAN Committee on Science and Technology (COST).[423] SCOSA's main task is to continue the AEGRS practices, as well identify areas of common interest among the ASEAN member countries in space-related technologies. Other objectives of SCOSA are as follows: to formulate and coordinate collaborative programmes on space technology and its applications, particularly in areas of remote sensing, communication and satellite technology

[418] See http://www.cto.int/membership/our-members/full-member-countries/, accessed: 14 May 2014.
[419] See http://www.cto.int/membership/member-benefits/, accessed: 14 May 2014.
[420] TM Malaysia is one of the leading communication companies in Malaysia and offers a comprehensive range of communication services and solutions in broadband, data and fixed-line. Its website is available at http://www.tm.com.my/, accessed: 14 May 2014.
[421] See http://astnet.asean.org/index.php?name=Main&file=content&cid=85, accessed: 14 May 2014.
[422] In 1995, AEGRS made a request to be elevated to a subcommittee under the Committee on Science and Technology (COST). In October 1999, the elevation of AEGRS was endorsed and the new name used is SCOSA. See *id.*
[423] ASEAN COST is responsible for steering the ASEAN science and technology policy, management and implementation of programmes guided by mandates laid down by the Summits of ASEAN Heads of States and Governments, and by the Meetings of the ASEAN Ministers for Science and Technology. See http://astnet.asean.org/index.php?name=Main&file=cost, accessed: 14 May 2014.

applications; to facilitate and accelerate the transfer of space technology and its applications to the ASEAN region; and to promote collaborative activities and projects on space technology and its applications with international organizations.[424]

SCOSA initiates two types of projects, namely Project Intra ASEAN, and Project ASEAN with Other Partners.[425] Under the Intra ASEAN Project, SCOSA introduces projects such as the ASEAN oil spill detection project, space technology and applications directory project, training workshop on precision farming, and others.[426] Meanwhile, the ASEAN with Other Partners Project involves collaboration and cooperation with donor countries, dialogue partners, financial institutions and international agencies. Such projects include ASEAN-China project, ASEAN-India project, ASEAN-ESA project, and many others.[427]

All ten members of the ASEAN countries make up the membership of SCOSA.[428] The SCOSA secretariat is located in Jakarta. The election of the SCOSA Chairmanship is undertaken on a rotation basis among the ASEAN member countries. In 1999, a Malaysian representative was chosen as Interim Chairman of SCOSA after the elevation process. He was appointed Chairman until 2002.[429] In SCOSA, all ASEAN member countries are represented. These appointments are made for coordinating purposes. In such circumstances, Malaysia has been represented by Datuk Nik Nasruddin Mahmood and also by Dato' Haji Darus Ahmad of the Malaysian Centre for Remote Sensing (MACRES).[430]

2.5. CONCLUDING REMARKS

From the foregoing discussion in Chapter 2, a number of conclusions can be inferred. Firstly, in respect of the current major world space activities, it is observed that space-related activities are engaging the attention of the world community at present, and they have the

[424] See http://astnet.asean.org/index.php?name=Main&file=content&cid=85, accessed: 14 May 2014.
[425] http://scosa.lapan.go.id/projects.htm, accessed: 8 February 2011.
[426] For details, see http://scosa.lapan.go.id/project1.htm, accessed: 2 February 2011.
[427] For more information, refer to http://scosa.lapan.go.id/project2.htm, accessed: 8 February 2011.
[428] The ASEAN member countries are Malaysia, Brunei Darussalam, Cambodia, Indonesia, Laos, Myanmar, Philippines, Singapore, Thailand, and Vietnam. See the ASEAN official website, http://www.asean.org/, accessed: 4 December 2012.
[429] Such person is Mr Nik Nasruddin Mahmood. As of 28 October 2010, Mr Darus bin Ahmad, the Director General of Malaysian Remote Sensing Agency (MACRES) is the Chairman of the ASEAN SCOSA. See http://scosa.lapan.go.id/chairmanship.htm, accessed: 8 February 2011; http://astnet.asean.org/index.php?name=Main&file=content&cid=94, accessed: 4 December 2012.
[430] See *id*.

most potential to continue to evolve rapidly in the future. Malaysia is one of the potential participants on and contributors to space-related activities, and has shown great interest in taking further part in such activities.

Secondly, regarding Malaysia's position with respect to outer space conventions, it is noted that Malaysia is a signatory state to only two United Nations outer space conventions (the Outer Space Treaty 1967, and the Rescue Agreement 1968) with no ratification at present. Malaysia is a non-party state to the other three conventions (the Liability Convention 1972, the Registration Convention 1975, and the Moon Agreement 1979). Pursuant to the general rule prescribed in Article 34 of the Vienna Convention on the Law of Treaty, as a signatory and non-party state to the space treaties, Malaysia is not bound by any rules prescribed in the outer space Treaties. However, there are certain circumstances should be noted at this point. Firstly, an obligation imposed by Article 18 of the Vienna Convention on the Law of Treaty to the signatory state which required for Malaysia (under her capacity as a signatory state) to refrain from any acts contravene the objective and purpose of the treaties that she signed. Secondly, there is a legal binding force in respect of the space treaties' rules to the signatory and non-party state when the treaties' rules are part of international custom under Article 38 of the Vienna Convention on the Law of Treaty.

From non-legal perspective, if Malaysia is to be seen as one of the 'responsible' space participants at the international level, it is strongly suggested that she considers ratifying the two conventions, as well as consider becoming a party to the other three conventions. The universal acceptance of and compliance with all these treaties by states such as Malaysia would certainly contribute to the orderly use of outer space as well strengthening its rules. Moreover, by becoming a party to the United Nations treaties, Malaysia would be able to protect and defend her legitimate rights and interest, as well as taking legal actions in accordance with the treaties. Furthermore, parties to the treaties can also propose new agreements, declarations and other instruments to regulate new areas or activities, and the use of new technologies.[431] As for the international outer space principles, it is noted that Malaysia has voted for all five of the United Nations outer space principles. This situation

[431] UNGA, Committee on the Peaceful Uses of Outer Space 'Report on the United Nations/Ukraine Workshop on Space Law on the theme "Status, application, and progressive development of international and national space law" (Kyiv, 6-9 November 2006), A/AC.105/880, at 5.

demonstrates Malaysia's willingness to recognize some international outer space legal rules and to further consider becoming a party to the other outer space treaties, conventions, and agreements.

Thirdly, with regard to Malaysia's membership of international and regional organizations, it is noted that Malaysia has become a member of various space-related bodies at both international and regional levels. This situation indicates Malaysia's high interest in becoming further involved in outer space-related activities either at the international or regional level by offering her contributions and commitments as a member of the international and regional space-related organizations.

In conclusion, Malaysia's involvement in the outer space rules and treaties, as well her contributions and commitments as a member of the international and regional space organizations have verified her willingness and enthusiasm to further engaged in outer space-related activities.