



UiTM LAW REVIEW

ARTICLES

- Irwin UJ Ooi* The Legal Status of Shipping Orders and the Shipping Manifest as Documents of Title under the Hague Rules in Malaysia
- Jashpal Kaur Bhatt* The Legal Implications of the Changing Nature of Employment in Malaysia
- Lim Heng Gee* Who is the Inventor under the Patents Act 1983? - The Concept of Invention and Inventorship
- Michael Blakeney* Intellectual Property Traditional Knowledge and Genetic Resources
- Mohammad Rizal Salim* Corporate Insolvency : Separate Legal Personality and Directors' Duties to Creditors
- Mohd Darbi Hashim* The Social Dynamics of Law: An Inquiry into the Multiformality of Law in Contemporary Malaysia
- Shad Saleem Faruqi* Secularism or Theocracy - A Study of the Malaysian Constitution
- Sharon K Chahil* A Critical Evaluation of the Constitutional Protection of Fundamental Liberties in Malaysia : The Meaning of "Law"
- Tunku Intan Maimura* Malaysia and the Law of Outer Space
- Zaiton Hamin* The Legal Response to Computer Misuse in Malaysia - The Computer Crimes Act 1997

NOTES & COMMENTS

- Irwin UJ Ooi* Sri Inai (Pulau Pinang) Sdn Bhd v Yong Yit Swee : The Duty of Care Owed by a Landlord to the Lawful Visitors of a Tenant

MALAYSIA AND THE LAW OF OUTER SPACE

by *TUNKU INTAN MAINURA**

"I wish to reaffirm Malaysia's commitment to the development and advancement of space science and technology applications. However, aware of the fact that Malaysia is a new participant in the space arena and conscious of the limitations of its resources, we will seek international cooperation in all aspects of space activities while at the same time vigorously nurturing our own indigenous capability".¹

Introduction

The year 1957 is undoubtedly an especially significant year for Malaysians. It is cherished and remembered as the year the country (then Malaya) gained its independence. But for some Malaysians, at least among the older groups, the year also denotes the momentous moment in human feat when the USSR, under its space programme, launched the first satellite, *Sputnik 1*, into the Outer Space.² The whole world was seized by *sputnik* euphoria. But that was some forty five years ago when the Outer Space was a *terra incognita* to the earth's population. Today the situation has changed tremendously. Suddenly the Outer Space is becoming overcrowded. More and more states are now embarking onto the space programme, including small nations, such as Malaysia. So advanced are space programme and space technology that there is now an International Space Station³ high up there in space.

Why is the rush to Outer Space? Why would states spend millions of dollars to launch their space objects into the Outer Space? Why would astronauts risk their lives exploring the Outer Space? What is so special about the Outer Space? What is it that the Outer Space has that the Earth does not?

The answers may lie in the fact that Outer Space affords a unique physical environment in which to conduct experiments; one of its most widely appreciated characteristics being its micro gravity. It also provides a sterile setting not easily or inexpensively achievable on Earth. The electromagnetic and radiation levels too

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1 Prof Datuk Dr Mazlan Othman, Head of the Malaysian Delegation to the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, 19-30 July 1999 (United Nations Publication). Presently the Director General of Agensi Angkasa Negara Malaysia.

2 One of the definitions of the Outer Space is that Outer Space begins when the air space ends. According to the adherents of the natural principle of interpretation, they maintain that airspace is synonymous with atmospheric space and includes any space where air is to be found. Because there are traces of air in the atmosphere up to 10,000 miles, therefore Outer Space begins after 10,000 miles from the earth. See DJ Harris, *Cases and Materials on International Law* (Sweet & Maxwell London 1983) at 193.

3 There are 16 states which are members of the International Space Station; at USA, Russia, Japan, Canada, Italy, Belgium, Netherlands, Denmark, Norway, France, Spain, Germany, Sweden, Switzerland, United Kingdom and Brazil.

differ significantly from those on Earth. These and other natural attributes of Outer Space make it a potentially attractive environment, which lead to inventions in a wide range of high technology fields.⁴

One important feature of the use of Outer Space, as opposed to its exploration, has been the employment of satellites⁵ in orbit to develop worldwide telecommunications. This is mainly because of the undisputable fact that in the era where instantaneous communication is vital, satellites play a crucial and important role.⁶

Malaysia has been using satellites for various forms of communications ever since the country's first satellite earth station at Kuantan began offering international services via Intelsat at 174 degrees East. Malaysia is also using the Indonesia PALAPA Satellite for communication with other countries in this region. The vision to be a developed nation by 2020 has made it imperative for Malaysia to develop her own communications satellites facilities.⁷

Hence, on 13 January 1996, Malaysia launched its pioneer Geo-stationary⁸ Malaysia East Asia Satellite MEASAT 1⁹ into the Outer Space. On 14 November 1996, MEASAT 2 was launched. Both these satellites, which are owned by Binariang Sdn Bhd of Kuala Lumpur, a private company, were launched aboard an Ariane 4 rocket from Kourou, French Guiana.¹¹ In June 2000 Malaysia's first micro satellite TIUNG-SAT, a Low Earth Orbit (LEO) satellite, which is owned by Astronautic Technology (M) Sdn Bhd (ATSB), a company in Kuala Lumpur, was launched.¹²

However, these bold steps that Malaysia has undertaken invariably raise some important legal questions of international import. What are the relevant laws and regulations that govern Malaysia's space activities? Where does our right to use the

4 Sa'id Mosteshae, *Research and Invention in Outer Space* (Martinus Nijhoff Netherlands 1995) at 2.

5 There are various types of satellites namely; reconnaissance satellites, geodetic satellites, navigation satellites, communication satellites, meteorological satellites, early warning satellites and nuclear explosion detection satellites.

6 Ian Brownlie, *Principles of Public International Law* (Oxford University Press 1980) at 86.

7 Malaysia's Ministry of Energy Communication and Multimedia web site <http://www.ktkm.gov.my>

8 Geo-stationary satellite has a distance of 22,500 miles altitude from the Earth's center and is directly above the Equator. See Bruce A Hurwitz, *The Legality of Space Militarization* (Elsevier Science Publishers BV Netherlands 1986) at 82.

9 It is located at 91.5E and the geographic coverage are, for C-band: East Asia, Northern Australia and Guam and for Ku-Band: Malaysia, India and the Philippines. It has a design lifetime of 12.2 years. http://www.measat.com/html/system.html_25/6/01.

10 It is located at 148 E and the geographic coverage are for C-band: East Asia, Hawaii and Eastern Australia and for Ku-band: West Malaysia, Indonesia (Sumatra and Java), Taiwan, Eastern Australia, Vietnam and the Philippines. It has a design lifetime of 11.5 years. http://www.measat.com/html/system.html_25/6/01.

11 Ministry of Energy Communication & Multimedia web site p.1" <http://www.ktkm.gov.my/comm/satellite.html> p.1.

12 The mission objectives of the satellite are: advance remote sensing and digital store and forward communications. Other payloads include a digital data transfer experiment, positioning using an on-board GPS receiver and cosmic ray detection. It uses Radio Amateur Frequencies, thereby giving the Radio Amateur Society access to its Earth images and communication capabilities. TiungSat-1 was launched on a DNEPR launch vehicle into a 650km orbit in September 2000 under the auspices of the Russian Space Agency. The first images from its Earth imaging camera were obtained just one week of launch. http://www.sstl.co.uk/datasheets/mission_tiungsat.pdf 27/6/01.

Outer Space come from? How do we know whether our activities are consistent or otherwise with the laws that are applicable to space activities? When we launched our satellites, were we governed by any rules or regulations? It is to these questions that this article seeks to respond within the context of the present corpus of "Space Law".

Owing to the uniqueness and exclusivity of Outer Space, an international consensus has been reached that all activities carried out there, that can potentially be beneficial or dangerous to human existence on earth, would have to be regulated. As Martin Dixon has stated the point, "[a]s man invents an even greater capacity to explore and control the environment, it has become apparent that a stable legal regime governing its use is required".¹³ As such, the genesis and development of the law of Outer Space (space law) is in essence a product of human own necessity.

The Domain of Space Law

The term "space law" is most often associated with the rules, principles and standards of international law appearing in the five United Nations treaties and five sets of principles governing the Outer Space. It also includes other international agreements, treaties, conventions, rules and regulations of international and national law, executive and administrative orders and judicial decisions.¹⁴

Since Malaysia is a member of the United Nations,¹⁵ the five United Nations treaties and the five sets of United Nations principles will, therefore, bear a direct relevance towards its involvement in the Outer Space activities or projects.

The five United Nations treaties are:

1. The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty) 1967;¹⁶
2. The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of the Objects Launched into Outer Space (Rescue Agreement) 1968;¹⁷
3. The Convention on International Liability for Damage Caused by Space Objects (The Liability Convention) 1972;¹⁸
4. The Convention on Registration Of Objects Launched into Outer Space (the Registration Convention) 1974;¹⁹ and
5. The Agreement Governing the Activities of States on the Moon and other Celestial Bodies (The Moon Agreement) 1979.²⁰

13 Martin Dixon, *Textbook on International Law* (Blackstone Press Ltd London 1996) at 149.

14 <http://www.oosa.unvienna.org/FAQ/splawfaq.htm>.

15 Since its independence in 1957.

16 As of 1 February 2000, this Treaty has been ratified by 96 states and signed by 27 others. United Nations Publications A/AC.105/763.

17 As of 1 February 2000, this Treaty has been ratified by 87 states and signed by 26 others.

18 As of 1 February 2000, this Treaty has been ratified by 81 States and signed by 26 others.

19 As of 1 February 2000, this Treaty has been ratified by 42 States and signed by 4 others.

20 As of 1 February 2000, this Treaty has been ratified by 9 States and signed by 5 others.

The five sets of legal principles adopted by the United Nations General Assembly are:

1. The Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space (General Assembly resolution 1962 (XVIII) of 13 December 1963);
2. The Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (resolution 37/92 of 10 December 1982);
3. The Principles relating to Remote Sensing of the Earth from Outer Space (resolution 41/65 of 3 December 1986);
4. The principles Relevant to the Use of Nuclear Power Sources in Outer Space (resolution 47/68 of 14 December 1992);
5. 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 (resolution 51/122 of 13 December 1996).

The above five treaties are still open for signature and ratification by Members States. Under the general principle of international law, their provisions will bind States that have ratified them.

The treaties, principles and agreements mentioned above generally have the primary goal of ensuring a rational, responsible approach to the exploration and use of Outer Space for the benefit and in the interests of all humankind. This can be seen in most of the relevant treaties and conventions, wherein are set out several significant and relevant legal principles of space law:

- a. Space including celestial bodies is the province of mankind and developed for the benefit of the mankind;
- b. Space, including celestial bodies, is free for exploration, and use and exploitation by all;
- c. Celestial bodies cannot be appropriated by any nation;
- d. Celestial bodies shall be used only for peaceful purposes; and
- e. International law extends to space and celestial bodies.²¹

What we can construe from the above is the fact that space law deals primarily with activities in Outer Space. Nonetheless, it also regulates those activities carried out on earth but related to the Outer Space. This is understandably so as all space activities are in some way or the other connected to the ground stations, such as providing of support and analyzing the data for launching of spacecrafts.

Malaysia, however, has yet to ratify any of the treaties. Presently it is merely a signatory to the Outer Space Treaty 1967 and the Rescue Agreement 1968.²² Under

21 Ward & Partners <http://www.spacelaw.com.au/content/exploitation.htm>.
 22 United Nations Publication, document/A/AC.105/722/Add.1.

international law, these treaties act as guide to those States which have not legally bound themselves to the provision since they articulate the agreed upon principles relating to the exploration and use of the Outer Space. Therefore, Malaysia's space related activities are guided by the provisions in the said treaties.

With regard to the five sets of principles mentioned above, they have the legal status of the General Assembly resolutions whereby they provide generally accepted principles, rules and standards by which States would normally abide in connection with their space activities. Thus in this context, Malaysia and other States in general, may refer to these principles with respect to their space related activities.

Although Malaysia has not ratified any of the treaties above, it did ratify four²³ other agreements relating to space activities. These are:

1. Treaty Banning Nuclear Weapon Test in the Atmosphere, in Outer Space and Under Water 1963;
2. Agreement Relating to the International Telecommunications Satellite Organization (INTELSAT) and Operating Agreement Relating to the International Telecommunications Satellite Organization 1971;
3. Convention on the International Mobile Satellite Organization 1976, (amended in 1998 to provide for the restructuring of Inmarsat); and
4. International Telecommunication Constitution and Convention 1992.

Having ratified these agreements as such, Malaysia is, therefore, legally bound by their provisions.

At this juncture the question that can be posed is thus: How do all these laws and principles affect Malaysia's position? On the one hand it can be argued that Malaysia cannot be affected by these laws and principles in view of her inconsequential involvement in the outer space programme, for it has, to date, only sent three satellites into the Outer Space. But on the other hand it can also be asserted that its relatively insignificant involvement could only be momentary. Who knows that it may embark upon its own space industry in a more vigorous way in the near future? The recent announcement by the Agensi Angkasa Negara Malaysia (Malaysian National Space Agency) expressing Malaysia's intention to send its astronauts into Space was most indicative of Malaysia's seriousness to venture into the space industry even further²⁴. Further, to prepare itself for such an ambitious endeavour subjects in astronomy and astrophysics are now offered in some of the local universities. Similarly, it has built three planetariums, two in the Peninsular and one in the region of Sabah and Sarawak.

Should Malaysia eventually undertake a wider involvement in the Outer Space activities it would inevitably submit itself to international regulations. Thus, as

23 Ibid.

24 *Ulasan Melayu* 28 September 2002, at 9.

already stated in the document of the United Nations Office for Outer Space Affairs, Malaysia “[a]s a new player in this arena, [it] must establish the legal infrastructure needed to guide its future involvement”.²⁵

In order for such a legal infrastructure in Malaysia to be established, its familiarization with the relevant treaties and principles becomes significant. This article, therefore, will make a modest attempt to highlight a few of those important international treaties and principles, particularly ones that confer rights and impose responsibilities upon states with regard to activities in Outer Space.

Rights over Activities in Outer Space

Bruce A Hurwitz once declared, “Man’s imagination made it inevitable that one day he would be able to transport himself and his creation to the stars. Man’s search for knowledge made it possible. It is not, however, only a dream; it is also a *legal right* [emphasis added]”.²⁶

Foremost, Malaysia’s right and freedom to explore and use the Outer Space can be found under Paragraph 2 of the United Nations General Assembly Resolution on the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space 1963, wherein it is provided that:

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.

This provision was later extended in the Treaty Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies 1967 (hereinafter referred to as Outer Space Treaty) whereby it is provided that:

The exploration and use of Outer Space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Outer Space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

There shall be freedom of scientific investigation in Outer Space, including the moon and other celestial bodies and States shall facilitate and encourage international cooperation in such investigation.²⁷

²⁵ Web site: <http://www.oosa.un.or.at>.

²⁶ Bruce A Hurwitz, n 8 at 53.

²⁷ Article 1, Outer Space Treaty.

Despite their elaborateness, however, the above provisions bear an ambiguity. What exactly does the statement that “the exploration and use of Outer Space shall be carried out for the *benefit and in the interest* of all countries” (emphasis added) mean? This vagueness needs to be cleared for the reality of the situation is that each state in this world has its own interest, priority and agenda. Each state is controlled and dominated by its own municipal law, ideology and culture. Thus, what is beneficial for one state might not necessarily be beneficial to the other. Similarly, the aim and objective of each state differ from one another.

According to Ogunbanwo,²⁸ the expression “use and exploration of the Outer Space for the benefit and the interest of all countries” is to be understood as subjected to three conditions, namely:

- i. the use and exploration of Outer Space further the maintenance of international peace and security,
- ii. the use and exploration of Outer Space promote international cooperation and understanding, and
- iii. the information on the results obtained is released to the world community.

Assuming that the above view is accurate, an inference can be drawn that in as much as states are free to explore and use the Outer Space, their activities must be for the interest of maintaining international peace and security and promoting international co-operation and understanding, while the information that has been gathered must be disseminated to the world at large.

In relation to Malaysia’s position, therefore, when it sent its satellites into the Outer Space, it was properly exercising the rights that have been provided by the above principles and treaties. And to date, it has not been accused of violating any of the above three conditions. On the contrary, it can be asserted that international cooperation was fostered and achieved when MEASAT 1 and MEASAT 2 were launched aboard Ariane 4 which belonged to the European Space Agency in the French Guyana, while Tiung-Sat was launched aboard DNEPR under the auspices of the Russian Space Agency.

Notwithstanding the above treaties and principles, the still overriding consideration that Malaysia needs always pay regard in the course of undertaking any outer space activity is that it must be in accordance with the rules of international law,²⁹ including the Charter of the United Nations. The limitation on the states’ right to use and explore the Outer Space is further emphasised under Article 4 of the Outer Space Treaty 1967 which states that they are not allowed to place in orbit around the earth any object carrying nuclear weapons or any kind of weapons of mass destruction or any station for such weapons there.

28 Ogunsola O Ogunbanwo, *International Law and Outer Space Activities* (Martinus Nijhoff The Hague 1975) at 63.
29 Sources of International Law are international convention, international custom, and general principles of law recognized by civilized nations, and with limitation; judicial decisions and teachings of qualified publicists of various nations. Article 38(1) Statute of the International Court of Justice.

Principally, underlying such limitations is the need to protect the environment and other lawful objects that have been placed in the Outer Space. The world's population certainly has witnessed enough destruction created by their own kind to this planet earth through the usage of these types of weapons. And they have no desire to see similar destruction being extended to the Outer Space and its celestial bodies. Take the moon, for instance. What will happen if there is a war on the moon? What will happen if there is a factory for nuclear weapon on the Moon and such factory explodes? The disaster that struck Chernobyl should be a grim reminder to the earthlings. It was in this spirit that the United Nations/European Space Agency/Austria Symposium on "Enhancing the Participation of Youth in Space Related Activities" on the 9-12 September 2002, in Graz, Austria (where intense discussions of "no-weapon in space" were conducted) had passed the Resolution on the "Declaration Against Weapon in Space".

In the light of the foregoing, it is quite unlikely that Malaysia would participate in hazardous outer space activities proscribed by international law. This is by virtue of the fact that it has legally bound itself not to participate in nuclear tests in the Outer Space, through the Treaty Banning Nuclear Weapon Test in the Atmosphere, in Outer Space and Under Water 1963. If this is the principle that Malaysia has adopted, then placing objects carrying nuclear weapons or any kind of weapons of mass destruction into the Outer Space would most unlikely to be on its agenda.

Nevertheless, although states are prohibited from sending nuclear weapons into Outer Space, or to install military bases and to test any type of weapons on celestial bodies, the use of military personnel for any peaceful purpose or of military equipment necessary for peaceful exploration is allowed.³⁰ However, this poses yet another complex and sensitive issue that calls for the international community to find as a matter of urgency some form of resolution in the light of today's rapid development in science and technology.

Responsibilities over Activities in Outer Space

Rights are freedom which go hand in hand with duties or responsibilities. When a person is given certain rights, he is bound by certain responsibilities. Accordingly, when there are rights conferred to an entity, it is also reposed with responsibilities.

States responsibility with respect to their activities in the Outer Space can be found under all the treaties, principles and agreements that have been mentioned above. Under the Outer Space Treaty 1967, it is provided that:

State parties to the treaty shall bear international responsibility for national activities in Outer Space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities and for assuring that national activities are carried out

30 NA Maryan Green, *International Law, Law of Peace* (MacDonald and Evans 1982) at 197.

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 be borne by both the international organization and by the States parties to the Treaty participating in such organization.³¹

From the above provision, we can see that with respect to Malaysia, it will be responsible for the satellites that have been sent to the Outer Space, even though private bodies own them. In the eyes of international law, Malaysia shall be answerable to any claim and assertion that may arise out of the activities of these satellites. Similarly, by way of an example would be, if ASEAN were to have activities in the Outer Space, the member states of ASEAN would be responsible over the activities.

Under the Convention on the International Liability for Damage Caused By Space Objects 1972 (The Liability Convention 1972), it is provided that:

A launching³² state³³ shall be absolutely liable to pay compensation for damage³⁴ caused by its space object³⁵ on the surface of the earth or to aircraft in flight.

Basically, this provision applies the doctrine of strict liability upon the states that are involved in the launching of the space objects in the Outer Space. A hypothetical scenario would be if one of Malaysia's satellites were to fall back to earth and cause damage in other states. In this scenario, Malaysia would be responsible to pay compensation for the damage caused.

Malaysia's satellites are among those many satellites that have already been sent by other states in the world. As much as we do not want to anticipate or ponder upon the above hypothetical mishap, it can, however, happen to any other state. Research has shown that some of the satellites are obsolete and thus constitute space debris.³⁶ In one expert estimation, there are currently 40,000 pieces of space debris, each at least the size of a golf ball orbiting the earth. There are also millions of smaller pieces that sometimes fall back to earth. Unfortunately more debris is formed than is burnt up by the atmosphere.³⁷

31 Article 6, Outer Space Treaty.

32 Includes attempted launching. Article 1, Liability Convention.

33 Launching state means a state, which launches or procures the launching of a space object or a state from whose territory or facility a space objects launched. Article 1, Liability Convention.

34 Damage means loss of life, personal injury or other impairment of health; or loss of or damage to property of states or persons, natural or juridical, or property of international intergovernmental organization. Article 1 Liability Convention.

35 Includes components parts of a space objects as well as its launch vehicles and part thereof, Article 2 Liability Convention.

36 Space debris has become a large and generally neglected problem of space exploration. The problem originated in 1957 when Sputnik 1 was launched by the Soviet Union. Three months after the launch, the satellite ended its transmission and re-entered the earth atmosphere and was subsequently burnt up. Since then, there are at least 80 satellites that have broken up into smaller fragments.

37 Ward & Partners web site, http://www.spacelaw.com.au/content/space_debris.htm p.1 on 10/6/01.

One may try imagining such outer space objects falling down to earth. The two that did, one the Soviet nuclear powered satellites while the other the United States laboratories, (falling in Canada and Australia respectively) had caused significant environmental damage.³⁸ *But if these two were enough to disturb one's sense of security, there are 39,998 pieces more to go (or to come?)!*

In respect of the Soviet satellite, which is known as the case of Cosmo 954 Claim, *Canada v USSR*,³⁹ a Soviet satellite with a nuclear reactor on board disintegrated through Canadian airspace and fell on to Canadian soil. Canada sought compensation of 6 million dollars from the USSR for cleaning up the affected area. The Soviet Union, however, paid 3 million dollars without admission of liability.

It should be highlighted here that the provision of the Liability Convention shall not apply to any damage caused by a space object of a launching state to the nationals of the launching state/s. Similarly, the provision does not apply to foreign nationals during such times as they are participating in the operation of that space object from the time of its launching or at any stage thereafter until its decent, or during such time as they are in the immediate vicinity of a planned launching or recovery area as the result of an invitation by that launching state⁴⁰. Here we can see that the doctrine of *volenti non fit injuria* is applicable. Nevertheless although this international Convention is inapplicable under the situations mentioned above, liability could be determined under the municipal law of the respective state.

States are also responsible to register their space objects with an appropriate registry, and later inform the Secretary General of the United Nations of the establishment of such registry. This requirement is provided under the Convention On Registration Of Objects Launched Into Outer Space 1974 (Registration Convention) where it is provided that:

When a space object is launched into earth orbit or beyond, the launching state shall register the space objects by means of entry in an appropriate registry, which it shall maintain. Each launching state shall inform the secretary General of the United Nations of the establishment of such a registry.⁴¹

Each State of registry shall furnish to the Secretary-General of the United Nations, the following information concerning each space object carried on its registry:

- a. name of the launching state;
- b. an appropriate designator of the space objects and its registration number;
- c. date and territory or location of launch;

38 Ward & Partners website, http://www.spacelaw.com.au/content/space_debris.htm p.1 on 10/6/01.

39 *Ibid.*

40 Article 3, Liability Convention 1972.

41 Article 2, Registration Convention 1974.

- d. basic orbital parameters;
- e. general function of these space object⁴².

The idea underlying such a requirement is to enable the United Nations to keep track of all the space objects that have been launched into the Outer Space. This will help in the identification of the objects when the need arises. This arrangement is analogous to the requirement of the Road Transport Department (Jabatan Pengangkutan Jalan) in Malaysia, where car owners have to register their vehicles with the department.

The responsibility of states further extended in that states have the responsibility to inform the Secretary General of the United Nations as well as the public and the international scientific community, of the nature, conduct, locations and results of such activities.⁴³

One point that remains open for serious consideration, however, is that the general statement of "international liability" under the Liability Convention can be rendered meaningless when some crucial factors for its effective observance or compliance are left unaddressed. These include questions such as:

- 1. What is the claim mechanism, what liability law is to be applied and what are the elements of and bases for the calculation of the damages claimed?
- 2. What is the position of states that are not parties to the treaty?

Moreover, while non-treaty states cannot be prevented from claiming reparations from any state, yet if the treaty (1967 Outer Space Treaty) adds nothing to existing international law remedies, the issue then becomes academic.⁴⁴

Conclusion

From the foregoing discussion, it is proposed that Malaysia needs to formulate a national policy so as to provide guidance for its future Outer Space activities and involvement. It should formulate its own Outer Space Act. The United Kingdom, for example, has brought commercial space activities under regulation by the Outer Space Act 1986 (UK).

It is also proposed that the Malaysia Government continues supporting activities relating to space programmes provided that:

- a. The national security of Malaysia would not be threatened,
- b. Public health and safety of its nationals and international population at large would not be jeopardised, and
- c. The activity is consistent with the international obligations of Malaysia.

42 Ibid, Article 4.

43 Article 11, Outer Space Treaty.

44 Ian Awford, *Research and Invention in Outer Space* (Martinus Nijhoff Publishers Netherlands 1995) at 98.

Pollution of the Outer Space is another aspect that should be looked into. Thus the third proposal advanced here is that there should be a specific convention which regulates the environmental pollution of the Outer Space. With such a convention it is hoped that the Outer Space will not fall victim to pollutions that human beings are prone to create. A good start in this direction is perhaps by clearing the space of its debris and obsolete satellites.

According to Nicholas Matesco Matte, it is quite clear that as the use of Outer Space increases for scientific and economic purposes, the risk of injury to persons and damage to property will tend to grow to sizable portions and the harmful impact might be located anywhere in the world. Accidents could take place during the launching, the trajectory, the placing in orbit or the return of the spacecraft, thus causing injury to persons or properties in space, in the air or even on the earth itself.⁴⁵ Thus the next proposal is for the provision of an enforcement mechanism under the relevant treaties and conventions with regard the above matters, particularly the Liability Convention. Admittedly, however, one of the drawbacks of the international law is its lack of enforcement.

With regards the delimitation of Outer Space, during the meeting of The Legal Subcommittee for the Committee on the Peaceful Uses of Outer Space on its fortieth session, held in Vienna from 2 to 12 April 2001,⁴⁶ some delegates expressed the view that the definition and the delimitation of Outer Space were indispensable for member state to have a legal basis on which to regulate their national territories and to resolve issues arising from collisions that could occur between aerospace objects and aircraft. Some delegates also expressed the view that recent technological developments and emerging legal questions made it necessary for the Legal Subcommittee to consider the question of the definition and the delimitation of Outer Space without delay. The view expresses the differences in the legal approach to be adopted between the legal regime of Outer Space and that of the airspace.⁴⁷ The view of the Legal Subcommittee above towards defining the boundary of Outer Space merits serious consideration. Hence it is proposed that Outer Space should begin where air space ends.⁴⁸

Finally, the time has perhaps arrived for Malaysia to ratify other relevant conventions because it is now a player of the Outer Space industry (notwithstanding the fact that it has taken her almost 45 years since the first satellite was placed into the orbit by the Russians). It is hoped that Malaysia's wider participation in the space programme would loosen any attempt to monopolise the Outer space as well as adding more voice towards its peaceful use.

45 Nicholas Matesco Matte, *Aerospace Law* (Sweet & Maxwell Limited London 1969) at 349.

46 United Nations Publication, document A/AC.105/763 of United Nations.

47 *Ibid* at 9.

48 See n 2.