

STUDIES ON NATIONAL SPACE LAWS AND POLICIES IN ASIA PACIFIC REGION

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Introduction:

The speed with which the human population is increasing and the resources on earth are diminishing only make it imminent and necessary for human race to look skyward (space wards in fact for their ultimate existence and survival in future. Space technology and the benefits resulting there-from will not only be used for unlocking the secrets of universe to satiate the ending hunger of human specie more knowledge but will also enable us to sustain and improve human life on earth by advances in tele-communications including tele-education and tele-medicine, Remote Sensing and Geographical Information for applications in the field of agriculture, forestry, fishing environmental monitoring and urban planning so also disaster mitigation and management. Asia Pacific region as defined by the United Nations consists of 55 countries and about 60 percent of the world population with vast geographic area of land and sea. This is an area which has countries on the two extremes on the scale of development in all fields including that of space technology. In this region on one hand there are countries like Russian Federation, China, Japan, India, Australia who have a very robust and advanced space program and on the other side there are countries like Bhutan, Brunei Madagascar, Mauritius who are far behind in the nascent stages. In the field of National Space Laws also this region has two extremes on one end it has countries like Russia, Japan China and Australia who have detailed National Space Laws on the other it has countries like India and South Korea who have a space program but no National Space Laws This region therefore can be easily said to an area of two extremes in the field of space technology and law and an interesting case study in the field.

Recommendations of UNOOSA:

The Outer Space Treaty envisages many responsibilities on the nations:

- Article VI talks about State's responsibility for National Activities in the Outer Space.
- Article VII talks about State's International liability for damage caused by objects launched into the Outer Space.
- Article VIII talks about the Jurisdiction and control over the launched objects registered with the State.

Besides there are various International Agreements on issues like slots and frequencies of Telecommunication and Satellites like ITU and WRC.

Every year General Assembly in its annual resolution reaffirms the importance of international cooperation in development of rule of law, including the norms of space laws and urges the countries to become parties to outer space treaties and also to incorporate their ingredients into their national space laws.

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The UNISPACE III held in Vienna from 19-20.07.1999, appealed for promotion of development of space law to meet the needs of International community.

In the United Nations General Assembly review of implementation of recommendations of UNISPACE III in 2004 (A/59/174) the importance of development of space law was reaffirmed.

The action plan of UNISPACE III (A/59/174, chap. VI.B) to further strengthen the capacity-building activities in space law by UNOOSA by way of organizing a series of workshops on space law was endorsed by the General Assembly in its resolution 59/2 of 20.10.2004.

United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS) in its Report of the United Nations/International Institute of Air and Space Law Workshop on Capacity-Building in Space Law (The Hague, 18-21 November 2002) recommended the following as the priorities for national space law development:

- *The workshop noted that appropriate national space legislation should be a high priority for States involved in space activities.*
- *The workshop recommended that capacity-building efforts take in to account the individual differences between States, including those between developing countries, in particular the stage of economic and social development, the country's legal tradition and the exact nature of space activities carried out by the State concerned. National legislation should be adapted to national needs, taking into account practical applications.*
- *The workshop noted that States implemented their obligations under the treaties through national law. In that respect, the Workshop recommended that the Office for Outer Space Affairs develop basic elements that could be included in national space legislation and licensing regimes.*
- *The workshop noted that the protection of public health and safety, property and environment including limited natural resources, was an important factor underlying many existing national space licensing regimes. The workshop recommended that States involved in space activities develop similar licensing regimes for the benefit of the public.*
- *The workshop noted that the activities of national space institutions might have to evolve in response to changing circumstances and technical and economic development. For that reason, the Workshop recommended that the laws establishing national space policies and institutions be drafted to allow for flexibility.*

Recommendations for prioritizing education in Space Law was also laid in the workshop:

The workshop recommended that promotion of education in space law be approached on at least two levels, including both university programs and curricula for students and educators and short courses designed for professionals and decision makers.

- *The workshop recommended that States review their need for professionals in space policy and law. Educational programmes in space law could be developed in response to long-term needs.*

- *The workshop recommended that university programs and curricula in space law take into account international treaties related to space activities as well developments such as the enactment of national space laws and the increasing privatization and commercialization of space activities. They should consider an interdisciplinary approach and employ all possible avenues of international cooperation, including exchange programs (whether in person or online), joint research programs, scholarships, internships and international moot courts competitions.*
- *The workshop recommended that intensive, short-term workshops and regular training courses be held in specific States and regions in order to build capacity in space law and related fields. Workshops should be open to decision and policy makers, students, educators and professionals involved in space activities.*
- *The workshop recommended that the regional centers for space science and technology education, affiliated to the United Nations, include a basic course on space law in their curricula.*
- *It also recommended that initiatives to create space law databases include information on institutions that provide courses on space law and policy.*
- *It further recommended that a short lecture series on principles of space law aimed at professionals and students be developed by the International Institute of Space Law and be disseminated on a priority basis by the Office of Outer Space Affairs via videotape, the internet or other media.*
- *It also recommended that capacity-building activities focus on education at all levels of society as to how space activities could further national development goals.*

United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS) in its Report on the United Nations/Brazil Workshop on Space Law on the theme “Dissemination and developing international and national space law: the Latin America and Caribbean perspective” held at Rio de Janeiro, Brazil, 22-25 November 2004 made the following recommendations:

- *The workshop agreed on the importance of promoting a better understanding and knowledge of international space law.*
- *The workshop recognized the necessity to further develop international law to address contemporary questions relating to the exploration and use of outer space including issues arising from the increasing involvement of private and other commercial entities in space activities.*
- *The workshop recommended that States consider the development of national space legislation and regional agreements to enable them to offer entities involved in space activities legal certainty and transparency.*
- *The workshop observed that enacting national space legislation was one of many mechanisms by which to authorize and continue to supervise space activities of non-*

governmental entities and that States were free to use any mechanism they deemed appropriate.

- *The workshop agreed that information on existing international space law should be widely disseminated to professionals in the legal and space science and technology fields, in particular in developing countries.*
- *The workshop agreed that implementation of space law and policies by States required availability of qualified professionals. The Office of Outer Space Affairs should continue its efforts to actively support and promote education and capacity-building in space law. This was essential for promoting national expertise and capacity in this field.*
- *The workshop agreed that the regional centers for space science and technology education affiliated to the United Nations could play an important role in building capacity in space law. The workshop recommended that the regional centers in Latin America and the Caribbean include space law in their curricula.*
- *The workshop recognized the valuable public service provided by the website of the Office for Outer Space Affairs (www.unoosa.org) and recommended that Office further develop this site, in particular section on space law.*
- *The workshop agreed that multinational and bilateral cooperation among States in space law and activities was a practical means to allow full access to information. This would be useful for development of Latin American and Caribbean States in overcoming poverty, mitigating the damage caused by natural disasters and addressing other priority areas.*
- *The workshop noted the commitment of SBDA to continue collaborating with the Office for Outer Space Affairs and other international bodies to further develop space law, in particular in Latin America and the Caribbean. The workshop also noted that SBDA had committed itself to increasing regional cooperation in space law and to establishing specific programs for education, training and research in international and national space matters.*

United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS) in its Report on the United Nations/Nigeria workshop on the theme “ Meeting international obligations and addressing domestic needs” (Abuja, 21-24 November 2005) made the following recommendations, observations and conclusions:

- *Participants at the workshop agreed that universal acceptance of and compliance with the United Nations treaties governing the activities of States in the exploration and use of outer space would contribute to orderly use of outer space and ensure the strengthening of the rule of law, provide transparency with regard to rights and obligations of States in conducting space activities, increase development of customary behaviour, create a level playing field for all actors, ensure that non-state actors complied with the provisions of the treaties, enhance strategic stability and predictability and safeguard against arbitrary rulings. They therefore recommend that States not yet parties to the outer space treaties take the necessary steps to ratify or accede to them.*

- *Participants agreed that, by becoming parties to the outer space treaties, States could better protect and defend their legitimate rights and interests' legal action in accordance with the treaties, enforce equality of parties before the law, propose their amendment, clarification, updating and revision and also propose new agreements, declarations and other instruments to regulate new areas or activities including the use of new technologies.*
- *Participants agreed that it was imperative for States to conduct their space activities in accordance with international law, including the Charter of the United Nations and the outer space treaties, as well as to observe, in good faith, the United Nations principles on outer space.*
- *Participants noted that the principles on outer space could serve as foundation for future international treaties to further develop the legal regime of outer space.*
- *They also agreed that the website of the Office for Outer Space Affairs provided a valuable public service and was vital for disseminating information on space law and the work of the Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee.*
- *Participants recognized the crucial role of space technologies for sustainable development and noted the need for establishing and nurturing supportive national regulatory environments to optimize the utilization of space technologies.*
- *Participants agreed that it was essential for States to conduct a policy and legal assessment in order to establish the proper local context prior to developing their nation space policies and laws.*
- *They also agreed that States should ensure participation of key stakeholders in the development of their national space policies.*
- *They further agreed that outer space treaties provided a basis for the development of national space laws.*
- *Participants agreed that when a State party chose to enact national space laws it was important for it to do so in accordance with its international obligations and the national requirements of its existing legal system.*
- *Participants noted that national space laws should establish a regime for among other things, licensing, registration of space objects launched into outer space, liability and safety, a system for financial responsibility, including indemnification and insurance, and that they should take into account domestic interests, respect foreign interests and set up mechanisms for cooperative efforts with other States.*
- *They also noted that other existing national space laws could serve as examples when considering the development of national space laws.*
- *Participants agreed that developing countries with a sensing capability were in a position to influence the development of law by taking action to establish evidence of*

state practice that would enhance and protect the right of access to data from all sensing States. That could be achieved by applying the Principles Relating to Remote Sensing of the Earth from Outer Space (General Assembly resolution 41/65) and concluding bilateral and multinational agreements among developing countries that possessed sensing capabilities.

- *Participants also agreed that it was essential for developing countries to harness existing skills and educational experiences to overcome the challenges of developing capacity in space law.*
- *They also agreed that it was essential for educators, space law practitioners, legislators and policy-and decision makers in the African region to remain engaged in space law networks, including taking advantage of electronic mail to facilitate regular communication when a lack of resources limited other means of participation.*
- *They further agreed that increased opportunities for education in space law in the African region could be achieved by encouraging Governments, educational institutions as well as the private sector to participate actively in those efforts and by finding innovative solutions for overcoming financial constraints.*
- *Participants agreed that by including individuals with space law expertise in their delegation to meetings of space related intergovernmental organizations, such as the Committee on the Peaceful Uses of Outer Space and the International Telecommunications Union, Governments in African region would enhance their capacity to promote the development agenda in those organizations and encourage their youth to pursue professional careers in space law.*
- *Participants recommended that the Office for Outer Space Affairs develop, in accordance with recommendations made at previous United Nations workshops on space law, a baseline course on space law.*
- *They agreed that the participation of youth in conferences, symposiums workshops addressing space science, technology and law, such as the International Astronautical Congress, should be encouraged and facilitated.*

United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS) in its 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) made the following recommendations :

- *Participants of the Workshop recognized that this was the fifth in the series of workshops of space law that the Office for Outer Space Affairs had organized with the intention of building capacity in space law, increasing awareness and knowledge of international treaties and principles on space law developed under the auspices of the United Nations and providing a basis for their implementation on a practical level through development and administration of domestic legislation and regulatory regimes.*
- *Participants further recognized that the objective of the workshop was to study the specific requirements and conditions for the development of national space legislation in the Central and Eastern European region as well as in the Central Asian and*

Caucasus regions, taking into account that the successful implementation and application of the international legal framework governing space activities was dependent on the understanding and acceptance of those legal treaties and principles by policy-and decision makers.

- *Participants acknowledged that it has become increasingly important to ensure that space law and policy, including adherence to the United Nations treaties on outer space, are considered matters of priority by countries involved in space activities. The United Nations treaties and principles on outer space provide a legal framework for the exploration and use of outer space and the treaties offer numerous benefits to State parties.*
- *Participants agreed that universal acceptance and compliance with the United Nations treaties on outer space would contribute to the orderly use of outer space and ensure the strengthening of the rule of law in this field. The workshop further agreed that by becoming parties to space law treaties, States could better protect and defend their legitimate rights and interests, could take legal action in accordance with the treaties and could also propose new agreements, declarations and other instruments to regulate new areas or activities, including use of new technologies.*
- *Participants noted that, although Central and Eastern European countries and those of the Central Asian and Caucasus regions have been increasingly involved in space activities and have become more dependent on space applications and technologies, the level of their adherence to the space law treaties remains relatively low. Given the growing role that space technology applications play in improving the overall quality of life of people in these regions adherence to the space law treaties and the creation of a proper national legal frame work should become a priority. Participants further noted that regional organizations, as well as the Commonwealth of Independent States could play an active role in increasing awareness among decision-makers of the benefits of the States adhering to the legal regime of outer space.*
- *Participants noted that the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, in particular articles VI, VII and VIII the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space the Convention on International Liability for Damage Caused by Space Objects (the Liability Convention) and the Registration Convention facilitated the establishment of National Space Legislation in particular where private entities become involved. Participants further noted that the changing nature of space activities, in particular the commercialization and privatization of outer space activities, presented new challenges, in particular to the Liability Convention. In regard, participants noted that the Liability Convention established one of the most victim-oriented international liability regimes in existence. This regime benefits all parties to the agreement, since space objects can cause damage in any country whether space-faring or not.*
- *Participants recognized the need for the progressive development of international space law and national space law to address contemporary questions relating to the exploration and use of outer space, including issues arising from the increasing involvement of private and other commercial entities in space activities. It was*

therefore important that States consider the development of national space legislation and regional agreements to enable them to offer entities involved in space activities legal certainty and transparency, and to provide a reliable legal framework for private space activities.

- *Participants noted that national space laws should establish a legal regime, inter alia for the licensing and registration of space objects launched into outer space, that would adequately address liability and safety, as well as a system for financial responsibility, including indemnification and insurance, that would take into account respect for foreign interests and that would establish mechanisms that would enable cooperative efforts among States.*
- *Participants agreed that when a State chose to enact national space laws it was obliged to do so in compliance with international obligations and the national requirements of its existing legal system.*
- *Participants agreed that information concerning existing international space law should be widely disseminated to professionals in the legal, scientific and technological fields, as well as to the general public. It was considered important that States ensure the participation of key stakeholders in the development of their national space policies in order to promote a better understanding and knowledge of international space law. Multilateral and bilateral cooperation among States in space law and space activities were considered a practical means of allowing full access to information.*
- *Participants recommended that space law capacity-building efforts take into account individual differences among States, in particular those relating to the stage of economic and social development, the legal tradition and the specific nature of the space activities carried out by the State and its nationals.*
- *Participants agreed that it was essential for educators, space law practitioners, legislators and policy- and decision-makers to remain engaged in space law networks. It was regarded as important that the participation of youth in conferences, symposiums and workshops addressing space science, technology and law should be encouraged and facilitated. Participants recommended that educational programs in space law be developed in response to long-term needs. It was also recommended that capacity-building activities focus on educating all levels of society on how space activities could further national development goals and international cooperation in this field.*
- *Participants recommended that short, intensive workshops and regular training courses be held in specific States and regions in order to build capacity in space law and related fields. The workshops should be open to policy- and decision makers, students, educators and professionals involved in space activities. They also recommended that initiatives to create space law databases include information on institutions that provided courses in space law and policy.*
- *Participants recommended that the Office for Outer Space Affairs pursue the possibility of identifying fellowship opportunities for students from developing countries to undertake studies in space law and recommended that the Office develop*

a baseline course on space law in accordance with the recommendations made at previous United Nations workshops on space law. In that sense, the regional centers for space science and technology education, affiliated to the United Nations, could play an important role in building capacity in space law by including a basic course on space law in their curricula.

- *Participants recognized the valuable public service provided by the website of the Office for Outer Space Affairs and recommended that the Office further develop its site, in particular the section on space law.*
- *Participants recommended that the Office for Outer Space Affairs continue organizing workshops on space law in cooperation with Member States.*

Thus it is abundantly clear there is a unanimity in the opinion of all the countries and regions where UNCOPUOS has organized workshops to promote, encourage and actively develop national space laws. This not only to cater to the individual country's International obligations but to also act as a tool and medium for encouraging various space activities by public and private entities in a transparent and secure environment to ultimately play a decisive role in overall sustainable development of member countries and regions. Stress also has been laid on cooperation in the international level and more so in the regional levels for cooperation in development of space laws and policies suitable for not only individual countries but also for the entire regions. Importance of region and country specific laws also has been laid apart from the need for uniformity in space laws across the globe. As already pointed out above since Asia Pacific region is extremely crucial area in terms of having extreme contrast in the space activities' capacity of countries in this region, a UNCOPUOS workshop specifically dealing with the subject of space laws would be of great importance as has been organized in various other regions.

STATUS OF NATIONAL SPACE LAWS AND POLICIES IN ASIA PACIFIC REGION

According to the UNOOSA website² nineteen countries United Kingdom, Argentina, Australia, Brazil, Canada, Chile, China, France, Germany, Japan, Kazakhstan, Kenya, Norway, Russian Federation, South Africa, Spain, Sweden, Ukraine and United States have national space laws. Out of these Australia, China, Japan and Russian Federation fall in Asia Pacific region. India is a typical example a country which has a robust space program but does not have a national space legislation although it has a legal regime in the form of guidelines issued by the government. Other countries in the region that have a relatively strong space presence are South Korea, Taiwan and Malaysia. Apart from these other countries that are emerging in the space field are Singapore, Indonesia, Bangladesh, Cambodia, Fiji, Hong Kong, Laos, Mongolia, Myanmar, Nepal, Philippines, Sri Lanka, Vanuatu, Pakistan, Thailand, Vietnam. These countries also do not have National Space Laws.

SALIENT FEATURES OF VARIOUS SPACE LAW REGIMES AND POLICIES IN ASIA PACIFIC REGION.

Thailand

² http://www.unoosa.org/oosaddb/browse_all.jsp?level1=countries&level2=none

The National Space Agency is **Geo-Informatics and Space Technology Development Agency (GISTDA)**

The policy and aims statement as given in its website³ are as follows:

- To develop space technology and geo-informatics applications to be beneficial to the general public
- To develop the satellite data base and the derived natural resources information center
- To provide data services relating to space technology and geo-informatics A center of excellence on space technology and geo-informatics
- Develop cooperative national and international networks to support sustainable development and improvement of natural resources and environment as well as quality of life
- GISTDA main strategies: investment, services, research & development, technology transfer and data exchange in space technology and its applications and geo-informatics with relevant national and international agencies both public and private sectors
- To provide technical services and develop human resources in satellite remote sensing and geo-informatics
- To conduct researches and development as well as to implement other activities related to space technology, including the development of small satellites for natural resources survey
- To be the core organization to establish common standards for remote sensing and geo-informatics systems
- Agriculture, Forestry, Environment/Disaster and Urban Planning the mentioned applications.
- As for the International cooperation ESCAP, ASEAN, Japan, France, Malaysia, India and Russia are the cooperating partners.

Pakistan

Pakistan Space & Upper Atmosphere Research Commission (SUPARCO) is the National Space Agency.

Policy and Aims as depicted in its website⁴ in the introduction is “SUPARCO is devoted to R&D work in Space Sciences and Space Technology and their applications the peaceful uses of outer space .It works towards developing indigenous capabilities in space technology and to promote space applications for socio-economic uplift of the country.

As for international cooperation SUPARCO is associated with APSCO, UN COPUOS, UNESCAP, COSPAR, ISPRS, National Coordination Committee for COSPAS-SARSAT,

³ <http://www.gistda.or.th/Gistda/HtmlGistda/Html/index2.htm>

⁴ <http://www.suparco.gov.pk/introduction.asp>

American Institute of Aeronautics and Astronautics (AIAA), IAF, IAA, Asian Association for Remote Sensing (AARS), Asia Pacific Space Cooperation Organization (APSCO), Inter-Islamic Network on Space Sciences and Technology (ISNET), International Agreements/Conventions/Treaties/MOUs/Contracts.

Bangladesh

Bangladesh Space Research and Remote Sensing Organization (SPARRSO).

The Aims as given in the introduction and objectives of its website⁵ are that it :

- Acts as the centre of excellence and national focal point for the peaceful applications of space science, Remote Sensing and Geographic Information System (GIS) in Bangladesh.
- Advises the Government in all matters relating to space technology applications and policy.
- Keeps close collaboration with national, regional and international organizations, institutions and agencies.
- Disseminates research results, satellite data and information to the relevant public, autonomous and private agencies for their development and policy making activities. Also performs advisory expert services on request.
- To apply space and remote sensing technology for surveying natural resources and monitoring the environment and natural hazards in the country for attaining sustainable development.
- To establish broad based space & remote sensing data acquisition, processing and dissemination system in the country.
- To act as the national focal point for space and remote sensing activities in the country and to provide the Government with relevant information for deciding national, regional and inter- national policy issues.
- To establish regional & international cooperation & collaboration for the peaceful uses of space science and technology.
- The activities it aims and is concentrating are Agricultural research, Disaster monitoring, Environment Study, GIS applications, Forestry, Fisheries, Water resources, Oceanography, Coastal environment study and many others.

Indonesia

National Institute of Aeronautics and Space {Lembaga Penerbangan dan Antariksa Nasional (LAPAN)}

It is a part of The Organization of State Ministry of Research and Technology (RISTEK) and is a Non Department Research Agency Under State Ministry of Research and Technology.

⁵ <http://sparrso.gov.bd/intro.html>

In an interesting paper presented titled “Space Education and Awareness Activities in Indonesia” by Agus Hidayat LAPAN- Indonesia, presented in 13th session of the Asia Pacific Regional Space Agency Forum (APRSAF 13), 5-7 December 2006, Jakarta, Indonesia.

Space Activities in Indonesia were depicted as:

The application of space science and technology in Indonesia is directed toward the improvement of people life quality and the environment of people life quality and the environment. Such policy can be achieved through the implementation of several activities which include:

- Research and development of aerospace technology;
- Research and development of remote sensing technology and application
- Research and development of atmosphere climate and space sciences.

The activities related to space education and awareness in Indonesia include:

- Formal Educations;
- Trainings/Short Courses;
- Public Awareness: which include Exhibitions, Open house (inviting students to Research Facilities), Edutainment at the Planetariums and Observatories, Student Contests etc.

Further that there are 5 major universities (ITB, IPB, UI, UGM and ITS) conducting space related programs (undergraduates, graduates and non degree programs); Those programs majoring in astronomy, aeronautics engineering, remote sensing and GIS also very minor subjects are taught in high schools and elementary schools; Training and Short Courses are also undertaken for High School teachers, Local Government Officers, Fisheries Offices Staffs and Fishermen.

The following future challenges have been enumerated:

- To set up space education and awareness program;
- To set up space education and awareness center/unit;
- To include more related institutions in SEA activities;
- To conduct SEA activities (WRE, Poster Contest, Space Education Seminars/ Workshops for school teachers) on regular basis;
- To create new and attractive SEA activities, in order to encourage younger generations to be more interested in space science and technology;
- To add more facilities(more planetarium), in some provinces;

- Collaborations between participating agencies within the framework of APSRSAF need to be created and improved.

Indonesian Center for Air and Space Law (ICASL) was established at Padjadjaran Law School in Bandung, in the year 1988, it is interesting to note that Air and Space Law is being taught at Padjadjaran Law School since 1963, which was initiated by Prof. Dr Priyatna Abdurrasyid, SH , Ph.D

The objectives of ICASL are to conduct and to promote research and the teaching in the field of air and space law, to enhance interdisciplinary and mutual cooperation between universities, governmental agencies and private entities dealing with air and space law affairs, and to provide educational and research services and facilities for the development of air and space activities at national, regional and international level.⁶ Thus it is very interesting that Indonesia was one of the first countries not only in the asia-pacific region but also in the world to start teaching air and space law.

Malaysia

The Malaysian National Space Agency (ANGKASA) its official website⁷

Malaysian National Space Agency is responsible in leading and observing the development of space science in Malaysia through following efforts

- Providing leadership in the educational aspect and the research of space science
- Assisting the government in formulating and executing the National Space Fundamentals.
- Providing quality service to customers to help achieve the above mentioned goals.

Malaysian Space Policy ANKASA is in the process of developing Malaysian Space Policy which policy is to inter alia-

- set out the vision and goals of Malaysian space activities for the new century;
- provide strategic context for investments in space exploration and exploitation by the Government and industry in order that they contribute effectively towards the socio-economic well-being of the nation;
- mobilize and organize the resources (financial, manpower & institutional) to make such investments work for the nation in term of enhancing the productivity and skill-levels of the key economic sectors as well as the generation of high value added products, processes and services; and
- establish the framework for the effective performance of the various actors involved in the exploration and exploitation of space including the engagement with external parties.

⁶ <http://www2.elga.net.id/~webleged/icasl.htm>

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Malaysian Space Law:

For the purpose of regulating the activities in outer space, the National Space Agency (ANGKASA) in collaboration with the Attorney General's Chambers has initiated a draft Malaysian Outer Space Bill which is intended to be a specific legislation to regulate outer space activities by Malaysia. Currently, Malaysia has in place certain existing legislation relating to certain aspects of space activities such as the Malaysian Communications and Multimedia Act 1998 which regulates licensing relating to Malaysian communication satellites. Pursuant thereto, consultations are being undertaken with the relevant stakeholders in order to finally enact a space law to regulate Malaysia's outer space activities. In formulating a domestic legal framework, Malaysia is also guided by the relevant international law principles relating to outer space activities, such as, the United Nations treaties on outer space, principles adopted by the United Nations General Assembly, and other international agreements relating to activities carried out in outer space.

The first national space programme (Angkasawan) aims to benefit Malaysians and the country, especially in the development of scientific and technological capabilities as well as boost its international image.

The programme is expected to spur Malaysians to develop an interest in science and technology, space studies, and promote local scientific and space industries.

The programme's core ideals include:

- to inspire all Malaysians to strive for excellence;
- to send an angkasawan to the International Space Station (ISS) to carry out activities that will benefit Malaysian science, technology and industry;
- to gain knowledge and experience from Russia and other countries and using this acquisition as a base for Malaysia to develop expertise in space science and zero-gravity applications;
- to instill an interest among young Malaysians to explore new areas of science and technology; and,
- pooling knowledge to conduct a wide variety of research for the future benefit of the human race at the ISS.

National Space Agency's role

THE National Space Agency (Angkasa), which falls under the Ministry of Science, Technology and Innovation, is responsible for leading the development of space science in Malaysia through the following:

- providing leadership in the education and research of space science;
- assisting the government in formulating and executing national space fundamentals; and

- providing quality service to customers to achieve the goals.

One of its well-known facilities is the National Planetarium, which serves as an education facility for the public. Its objective is to inspire the public about space through the consolidation of space science and local arts.

Among its attractions are an ancient observatory park, binocular/ viewing gallery, Merdeka sundial, mini planetarium and a space theatre.

Since the National Planetarium's establishment in 1994, public awareness of space science has registered an increase.

Consequently, there is also a growing interest in the subject of astronomy among students.

With the establishment of Angkasa in 2002, a plan was made to develop an observatory with robotic telescope system that could be controlled through the Internet.

This observatory is the Langkawi National Observatories of Malaysia and it consists of a telescope for night-sky observations and a solar telescope.

The objectives of the observatories are:

- to facilitate interest in astronomical research;
- to equip the country with a basic astronomy infrastructure;
- to enhance knowledge and attract Malaysians to space science; and
- to allow astronomers from around the world to use the observatories for studies on the equatorial sky.

The National Observatories of Malaysia is located at the Bukit Malut Reservoir Dam, Langkawi, Kedah.

Meanwhile, the development of Malaysia Space Centre began in 2004. This centre is in Sungai Lang, Banting, Selangor. The first phase involved the development of the Mission Operations Centre (MOC), completed on May 5, 2005.

The MOC's function is to control and maintain satellite operations. Its main role is the tracking, telemetry and monitoring of satellites.

In August 2005, the RazakSAT Calibration Lab was conceived and completed the following year.

Thus Malaysia is one more country in this region, which not only is heading for a robust Space Program but also is also seriously working to put its national space legislation in place so also creating awareness and interest in its citizen about space activities it also wishes to promote the privatization of space activities in a big way. This year first Malaysian astronaut will be going to the ISS, which will be a big boost for Malaysian Space aspirations.

Mongolia

The National Remote Sensing Center Of Mongolia:

It was established in 1987. The responsibilities of this center are to coordinate all activities related to remote sensing in Mongolia, and is aimed at developing local capability for evolving efficient methods of investigating, classifying and monitoring natural resources of the country by using modern space science and remote sensing technology. The National Remote Sensing Center also effects monitoring of environmental and natural disasters, such as cyclones, droughts, forest fires, hurricanes, severe snow cover and air pollution on the territory of Mongolia.

South Korea

Korea Aerospace Research Institute (KARI):

It was initially established in 1989 as an institute within the Korea Institute of Machinery of Metals (KIMM) in 1996 KARI became independent of KIMM.

Space Exploitation Promotion Act in this act early history, present and future activities are described the act. Further provisions in detail have been made for Launch Licensing, Liability, Registration, Use of satellite information, Astronaut rescue, Third party liability, Insurance and establishment of new institutions.

Taiwan

National Space Organization NSPO⁸

It is being envisaged as Topnotch Research Organization, One of the top space technology countries in Asia, Important Member of the Global Space Community and its mission is to Accomplish National Missions, Establish self-reliant satellite technology, Conduct world class space science research, Promote satellite applications.

Informations Center for Aero-Space Law and Maritime Law consists of 3000 volumes and 20 legal periodicals is the only reference center in Taiwan. Soochow University School of Law is aiming to become a Legal authority in Aero-Space-Law in Asia.

So though Taiwan does not have a national space legislation of its own but the government is exhibiting lot of interest in development of this subject.

Iran

IRANIAN SPACE AGENCY (ISA) established to do research, design and implementation in the field of space technology remote sensing and development of national and international space technology and communication networks. ISA also performs the approvals of Iran Space Council (ISC), which is established in order peacefully use space technology and science and the above atmosphere to develop culture, technology science and finance of the country. The head of ISC is president of Islamic Republic of Iran.

⁸ <http://www.nspo.org.tw/2005e/>

Singapore

The Centre for Remote Imaging, Sensing and Processing (CRISP) in National University of Singapore, is Singapore's main organization responsible for remote sensing activities. CRISP operates a remote sensing satellite ground station which was installed in September 1995.

The Centre for Research in Satellite Technologies (CREST) in Nanyang Technological University (NTU) is a joint center for satellite engineering between NTU and Defense Science Organization (DSO).

North Korea

North Korean Space Agency

New Zealand, Philippines and Vietnam also have significant space activities going on.

Now I will come to the situation of space laws and policies in the major space faring nations of this region.

Russia

RUSSIAN FEDERAL SPACE AGENCY (RKA, ROSKOSMOS) is the government agency responsible for Russia's space science program.

After the disintegration of USSR there was a severe resource crunch in the Russian Space Agency which it overcame by it playing major role in commercial satellite launching and space tourism. With recovery of Russian economy from 2005 the state budget for the space activities also substantially increased and currently Russian Space Agency is a partner in ISS, space tourism, Soyuz successor, scientific robotic missions to one of the moons of Mars etc are some of its future programs. It also has the most commercial launches to its credit per year.

Russia also has intensive space law regime to regulate its space activities. It includes:

Edict of the President of Russian Federation; About structure of management of space activity in Russian Federation of 1992.

For the purposes of effective use of rocket and space complex of Russia in interests of socio-economic development, security and international cooperation of Russian Federation decree:

1. To form the Russian Space Agency (RSA) under the Government of Russian Federation.

To charge the Russian Space Agency with: realization of state politics in the field of the exploration and use of outer space;

LAW OF RUSSIAN FEDERATION “ ABOUT SPACE ACTIVITY”⁹

It states that “The exploration of outer space, which began in Russia, opens up new prospects for global civilization. In Russian Federation the exploration and use of outer space, including the Moon and other celestial bodies, is one of the most important directions of activities in the interests of citizens, society and state. The present Law is intended to provide legal regulation for space activities and stimulates the application of the potential of space science and industry for solving socio-economic, scientific, technical and defense task of Russian Federation.” It broadly covers the following topics:

ARTICLE 2: CONCEPT OF SPACE ACTIVITY

ARTICLE 3: GOALS AND PURPOSES OF SPACE ACTIVITY

ARTICLE 4: THE PRINCIPLES OF SPACE ACTIVITY, it prohibits the test, placement use of any nuclear weapons or any other weapons of mass destruction in outer space and also activities leading to unfavorable changes in environment and also other activities prohibited by international treaties of Russian Federation.

ARTICLE 7: SPACE ACTIVITY FOR PURPOSES OF DEFENSE AND SECURITY OF RUSSIAN FEDERATION

ARTICLE 9: LICENSING OF SPACE ACTIVITY it details a licensing regime for space activities of organizations and citizen of both Russian and Foreign citizens.

ARTICLE 12: FINANCING OF SPACE ACTIVITIES AND FOREIGN INVESTMENTS

ARTICLE 17: SPACE OBJECTS it deals with the registration and jurisdiction and control over space objects registered in Russian Federation.

ARTICLE 19: SPACE FLIGHT CONTROL it deals with possibility of accidents etc

ARTICLE 22: ENSURING SAFETY OF SPACE ACTIVITY

ARTICLE 23: INVESTIGATION OF SPACE INCIDENTS

ARTICLE 24: SEARCH AND RESCUE, CLEAN-UP OF ACCIDENTS

ARTICLE 25: INSURANCE OF SPACE ACTIVITY

ARTICLE 26: INTERNATIONAL OBLIGATIONS IN THE FIELD OF SPACE ACTIVITY

ARTICLE 27 & 28 deal with Legal regime and regulation of International Cooperation.

ARTICLE 29 & 30 deal with liability and responsibility for damage

⁹ Decree No. 5663-1 of the Russian House of Soviets

Thus the National space legislation is not only alive to all its international responsibilities accruing out of the international treaties but also lays stress on commercialization and international cooperation.

AUSTRALIA: SPACE ACTIVITIES ACT 1998

SECTION 11: REQUIRES A LAUNCH PERMIT OR EXEMPTION CERTIFICATE FOR A LAUNCH

SECTION 13 & 14 TALK ABOUT THE PERMIT AND AUTHORIZATION OF RETURN OF A SPACE OBJECT.

SECTION 18 TO 45 DEALS WITH A DETAILED LICENCING REGIME

SECTION 47 TO 49 DEALS WITH THE INSURANCE ISSUES

PART 4 DEALS WITH THE DAMAGE BY SPACE OBJECTS INCLUDING THIRD PARTY LIABILITY

PART 5 DEALS WITH THE REGISTER OF SPACE OBJECTS

PART 7 ABOUT THE INVESTIGATION OF ACCIDENTS

THE Australian National Space Legislation extensively deals with the commercialization of space activities and one of the typical aspects dealt with is also the re-entry phenomenon of launched vehicles.

China

CHINA NATIONAL SPACE ADMINISTRATION in a white paper¹⁰ defines its space law policies and broad outlines of a legal regime.

Aims and Principles

The Chinese government has all along regarded the space industry as an integral part of the state's comprehensive development strategy, and upheld that the exploration and utilization of outer space should be for peaceful purposes and benefit the whole of mankind. As a developing country, China's fundamental tasks are developing its economy and continuously pushing forward its modernization drive. The aims and principles of China's space activities are determined by their important status and function in protecting China's national interests and implementing the state's development strategy.

The aims of China's space activities are: to explore outer space, and learn more about the cosmos and the Earth; to utilize outer space for peaceful purposes, promote mankind's civilization and social progress, and benefit the whole of mankind; and to meet the growing demands of economic construction, national security, science and technology development and social progress, protect China's national interests and build up the comprehensive national strength.

¹⁰ <http://www.cnsa.gov.cn/n615709/n620681/n771967/69198.html>

➤ China carries out its space activities in accordance with the following principles:

Adhering to the principle of long-term, stable and sustainable development and making the development of space activities cater to and serve the state's comprehensive development strategy. The Chinese government attaches great importance to the significant role of space activities in implementing the strategy of revitalizing the country with science and education and that of sustainable development, as well as in economic construction, national security, science and technology development and social progress. The development of space activities is encouraged and supported by the government as an integral part of the state's comprehensive development strategy.

- Upholding the principle of independence, self-reliance and self-renovation and actively promoting international exchanges and cooperation. China shall rely on its own strength to tackle key problems and make breakthroughs in space technology. Meanwhile, due attention shall be given to international cooperation and exchanges in the field of space technology, and self-renovation in space technology shall be combined organically with technology import on the principles of mutual benefit and reciprocity.
- Selecting a limited number of targets and making breakthroughs in key areas according to the national situation and strength. China carries out its space activities for the purpose of satisfying the fundamental demands of its modernization drive. A limited number of projects that are of vital significance to the national economy and social development are selected so as to concentrate strength to tackle major difficulties and achieve breakthroughs in key fields.
- Enhancing the social and economic returns of space activities and paying attention to the motivation of technological progress. China strives to explore a more economical and efficient development road for its space activities so as to achieve the integration of technological advance and economic rationality.
- Sticking to integrated planning, combination of long-term development and short-term development, combination of spacecraft and ground equipment, and coordinated development. The Chinese government develops space technology, application and science through integrated planning and rational arrangement in the aim of promoting the comprehensive and coordinated development of China's space activities.

International Cooperation

China persistently supports activities involving the peaceful use of outer space, and maintains that international space cooperation shall be promoted and strengthened on the basis of equality and mutual benefit, mutual complementarity and common development.

Guiding Principles

The Chinese government holds that international space cooperation should follow the fundamental principles listed in the "Deceleration on International Cooperation on Exploring and Utilizing Outer Space for the Benefits and Interests of All Countries, Especially in Consideration of Developing Countries' Demands," which was approved by the 51st General

Assembly of the United Nations in 1996. China adheres to the following principles while carrying out international space cooperation:

- The aim of international space cooperation is to peacefully develop and use space resources for the benefit of all mankind.
- International space cooperation should be carried out on the basis of equality and mutual benefit, mutual complementarity and common development, and the generally accepted principles of international law.
- The priority aim of international space cooperation is to simultaneously increase the capability of space development of all countries, particularly the developing countries, and enable all countries to enjoy the benefits of space technology.
- Necessary measures should be adopted to protect the space environment and space resources in the course of international space cooperation.
- The function of the United Nations Office of Outer Space Affairs (OOSA) should be consolidated and the outer space application programs of the United Nations should be backed up.

Fundamental Policies

The Chinese government adopts the following policies in developing international space cooperation:

- Persisting in the independence and self-reliance policy, carrying out active and pragmatic international space cooperation to meet the needs of the national modernization drive and the demands of the domestic and international markets for space science and technology.
- Supporting multilateral international cooperation on the peaceful use of outer space within the framework of the United Nations.
- Attaching importance to the Asian-Pacific regional space cooperation and supporting space cooperation in other regions of the world.
- Attaching importance to space cooperation with both developed and developing countries.
- Enhancing and supporting research institutions, industrial enterprises and universities and colleges to develop international space exchanges and cooperation in different forms and at different levels under the guidance of relevant state policies, laws and regulations.
- It is thus clear that Chinese government in its space policy and legislation fully supports its international obligations arising out of the international space treaties, it also lays stress on international cooperation specially in the Asia-Pacific region for its overall sustainable development.

Japan

TWO LEGISLATIONS

1. LAW CONCERNING THE NATIONAL SPACE DEVELOPMENT AGENCY OF JAPAN (LAW NO 50 OF JUNE 1969)

2. LAW CONCERNING JAPAN AEROSPACE EXPLORATION AGENCY (LAW NO.161 OF DECEMBER 2002)

ARTICLE 1: DEFINES PURPOSE as the National Space Development Agency shall be established with a view to conducting an integrated, systematic and effective manner the development, launching and tracking of artificial satellites and rockets exclusively for peaceful purposes, thereby contributing to the promotion of space development and utilization.

CHAPTER III : talks of compensation for Damages due to Launch of Artificial Satellites, Etc

ARTICLE 24-2 talks of the Insurance issues.

ARTICLE 24-3 talks of the commercialization by way of the concept of consigned launch.

INDIA: India does not have a specialized national space legislation it is in the process of enacting a comprehensive national space legislation but a stop gap arrangement has been made in the form of 'NORMS GUIDELINES AND PROCEDURES FOR IMPLEMENTATION OF THE POLICY FRAME-WORK FOR SATELLITE COMMUNICATION IN INDIA' these were announced in May 2000 and contain the following amongst other provisions:

- Indian parties providing uplinking of TV signals etc.with Indian satellites
- Use of INSAR capacity by Non-Governmental Parties
- Establishment and Operation of Indian Satellite Systems ; it allows Indian companies to establish Indian Satellite Systems following certain well defined and transparent Norms, Guidelines and Procedures. These will be registered with the Indian Government and for whose actions Indian Government will be internationally responsible. Only Indian registered companies with maximum of 74% FDI are allowed to establish and operate Indian Satellite System.
- Use of Foreign Satellites

Thus it is clear that although India still does not have a National Space Legislation but it does have a legal regime in place which has the necessary ingredients for privatization of space activities or at least many parts of space activities.

Hong Kong

OUTER SPACE ORDINANCE¹¹ This is an adoption of UK Outer Space Act 1986, which was adopted by Hong Kong as it was a dominion of UK and the same was carried forward with this ordinance. It contains provisions for licensing, Registration, Indemnification of government by the activities of private entities permitted by license to carry out space activities.

It is also pertinent to note that all the countries in Asia Pacific region have stressed upon the peaceful use of outer space technology for benefit of not only its own people but others also through international and specially regional cooperation. The space faring countries like Russian Federation, China, Japan, Australia all talk of making available its facilities for commercial use available to other nations and private parties, including for activities like space transportation, launching activities. Disaster management and mitigation is also another key subject which is discussed as an area of international cooperation, so also remote sensing. For the times of armed conflicts a pledge is there not to use space objects for military purposes at the times of armed conflicts.

The Asia Pacific region thus is quite active not only in its space activities but also most of the countries are making efforts to adopt and follow UNOOSA's and other International obligations. There is also a concerted effort in the field of creating awareness and so also international and more specifically regional cooperation. APSRAF & APSCO are typical examples of the efforts for regional cooperation.

The advantages of joining of resources are very many just to name a few important ones:

First It saves time, money and efforts of other countries which get involved in R&D of even the basic technologies which are already available with an another whose capacity is being underutilized or wasted because it cannot find use for full potential of its products and facilities. If this one country decides to share its products and facilities with another the benefits will be two folds for both, for one it would generate additional revenues for its existing products which can make its further R&D more feasible so also generating revenues as profits and for the recipient country it would save the cost of R&D which again could be utilized for other areas. So it is a win-win situation for both ends.

Secondly space debris which is becoming a big issue will also be resolved to some extent if there is no duplication of satellites and objects by various countries.

Thirdly GSO has been titled as a 'limited natural resource' by the International Telecommunication Convention and has to fulfill the criteria of 'efficiently and economically' utilization. Only this will result in the establishment of 'equitable access', for all countries or groups of countries.

Fourthly satellites operate through radio signals and use the radio frequency spectrum for providing their services. Three bands have been selected for bulk of space communication services, but here too higher the frequency, the more complex and expensive the technology becomes. Thus each and every country must get its share of lower frequency. This is also a limited resource in a way.

¹¹ Gazette No.55 of 1999.

As already pointed out Asia- Pacific region is not only one with a vast expanse but it also has more than 60 percent of the world's population. There is also a huge contrast between the two sides of this region one is advanced rubbing shoulders with the most advanced countries in all the fields including the field of exploration and exploitation of outer space.

Although outer space has potential for unlimited resources but there are certain areas in this field also which are limited. They are including but not limited to Geo Stationary Orbits, Radio frequency Spectrum, Low earth orbits and space in near earth orbits which has already resulted in huge problem of space debris. Although as we have seen above we have five major space faring players in this region i.e. Russian Federation, China, Japan, India and Australia and there are more who are on the threshold of starting robust programs. This will lead to unnecessary duplication of resources which can be very well be avoided and this is possible by way of more and more cooperation and sharing resources by the countries in this field. Although regional cooperation is increasing by the day in this region but there is still a lot that is desired. Although regional cooperation is taking shape in the form of ASIA PACIFIC REGIONAL SPACE AGENCY FORUM (APSRAP) and ASIA PACIFIC SPACE COOPERATION ORGANIZATION (APSCO), but still there are major conflicts between some countries in the region for various reasons. China- Japan, China-India, China-Taiwan, Japan-Korea, Russia-China, India-Pakistan, Thailand-Malaysia are some of the conflicts which effect the harmony and cordial relations in the country which definitely effect realization of full potential of the coordination in various fields including that of space activity.

The recent disaster of Psunami in the Indian ocean which devastated countries on both sides of Indian Ocean including Indonesia, Thailand, Sri Lanka and India definitely proved to be an eye opener and efforts for regional cooperation atleast in the field of disaster mitigation and management have tremendously increased by all the countries specially in this region. In my opinion Asia-Pacific region should take ESA as their role model for the regional cooperation since ESA has reaped unprecedented fruits for all its member nations due to the simple reason of joining of resources of the member countries which individually were not able to achieve progress with the present speed. There were and there are still conflicts of interest even in the European Union countries but they have developed a mechanism, which is proving to be quite successful.

Regular cooperation and interaction in fact in the longer run also leads to reducing inertia between the countries. In my opinion Asia-Pacific region if it is successful in achieving the cooperation at par with ESA countries there would be no stopping for this region from becoming world leader leaving other competitors far behind in the field of space activities. Imagine a situation where just Russian Federation, China, Japan, India and Australia join their space resources including utilizing their geographical locations, it would not only lead to availability of space products at a very affordable price for sustainable development of all the countries in the region. It will also have capability to make available cheap space products for sustainable development of all the other countries of the world. Thereby realizing the goal of UN treaties, which envisage special thrust for sustainable development of developing countries through space activities.

It is also an inevitable fact that without there being a detailed and suitable National Space legislation and international treaties there would be always doubts and suspicions about the future prospects of mutual cooperation between various countries. Creation of suitable National, regional and International space law regimes will go a long way in creating

confidence in working partners which will go a long way in alienating doubts, create an atmosphere of trust through just and transparent provisions for government, private and intergovernmental agencies. So in the interest of all round sustainable development of the whole region as such it is necessary that projects to develop and evolve suitable national and international regimes are created in the region at the earliest. A good way of developing such regimes would be to organize Project 2001 Plus (ESA) type workshops and projects are initiated at the earliest where professionals from all member countries should brain storm together and evolve various regimes of mutual benefit and long lasting cooperation.