

## The Main Contents of the New Space Development Promotion Act in Korea

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### 1. Introduction

The Korean government has decided to actively foster the aerospace industry in South Korea this year. The Ministry of Science and Technology's affiliated Korea Aerospace Research Institute (KARI) plans to launch the unmanned multi-purpose satellite Arirang 2 in December, 2005. The first-phase target en route to reaching the eventual goal is to blast off Korean-made satellites using Korean-built rockets from local launching facilities in 2007. Space Center is a launching site for launching artificial satellites to space by using space launching vehicles (rockets).

It is the outpost base to be built for the first time in Korea for ultramodern space science. It is also a place for launching not only satellites but also science observation rockets to perform space observation, which is composed of general ultramodern facilities and equipment. Space Center is to be built at Woinara-Do, Haban Village, Yena-e-Ri, Bongrae-Myon, Koheung-Goon, Junlanam Province on the southern coast of the Korean peninsula.

The first phase of the construction of the center will be finished by 2007 for launch of Korea Science Launch Vehicle 1.

This will make Korea the 13th advanced country in space development having a launching site in the world.

The "Space Center" will serve as the infrastructure for space and technological development and plans to launch a low earth orbit satellite in 2007.

In 2007, we will have the capacity to lift off a 100-kilogram low-earth-orbit satellite from our own launching pad that is currently under construction. To achieve the technological advances, Korea plans to spend 2.46 trillion *won* over the next five years and aims at launching 13 satellites by 2010. The second phase is to send large satellites as heavy as 1.5 tons into low orbit using only Korean industries and engineering expertise by 2015. Having the ability to launch a 1.5-ton object, the weight of the heaviest satellite, indicates the perfection of rocket technologies. When Korea acquires the know-how to send 1.5-ton objects into orbit, it will be able to evolve into one of the world's top 10 space pioneers. Currently, only a handful of advanced countries or regions - the United States, Russia, the European Union, China, Japan, India and Israel - have such a capacity.

The Ministry of Science and Technology will seek the legislation of the Space Exploration Promotion Act, including the designation of an aerospace authority and safety guidelines for future policy on space exploration projects. For this reason, the Korean Government proposed to the National Assembly a *Draft for the Space Development Promotion Act* in order to provide systematic legal assistance for space industry last year. The *Draft for the Space Development Promotion Act* was passed by a majority resolution of the Korean National Assembly on May 3, 2005.

The enactment of the *Space Development*

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*Promotion Act* in Korea is the first example of space law legislation in eastern Asian countries containing both public law and private law. This Act will play a role as a space activities act so as to become an excellent model for other Asian Countries.

## 2. A Brief History and Current Situation of Korea's Space Endeavor

Korea has a shot at achieving a fast-track development in the space race although the country jumped onto the competition later than other players. When our ancestors designed a rocket during the reign of King Sejong, they used a basic unit of 0.3 millimeters. Koreans' accuracy will play a pivotal role in boosting the country in a space race that needs precision. King Sejong, who encouraged the development of science and technology in the early 15th century, was the fourth monarch of the Lee Dynasty (Choson Kingdom : 1392-1910).

Korea has been in the background of the global space race, which began in the late 1950s by the U.S. and the then Soviet Union. Korea, which struggled to lift itself out of poverty when the two superpowers were pouring billions of dollars into the old war-related space race, did not have the funds to spend on such luxuries.

The nation began dabbling in space exploration in 1987 with the enactment of a law tailored toward promoting aerospace industrial development.

On the back of that law, Korea started to develop the country's first satellite *Kitsat 1* (Uri-byol: Our Star)<sup>1</sup> in the late 1980s and finally launched the experimental satellite in 1992.

Korea launched second science satellite, the so-called "*Kitsat-2* (Uri-Byul,2)<sup>2</sup>" in 1993, respectively and launched two scientific sounding rockets in 1993. Since then,

space activities have focused upon research and development (R&D) in this area. By launching three communication & broadcasting satellites "*KOREASAT 1*<sup>3</sup>, *2*,<sup>4</sup> *3*<sup>5</sup>" (*Mugoonghwa 1, 2, 3*: Korean national flower) of KT (Korea Telecommunication Co.) in 1995, 1996 and 1999, respectively, Korea has expanded the commercial uses of satellite.

KT, is a former state monopoly but was fully privatized in 2002. However, the KT satellites were provided by foreign manufacturers and were carried to orbit by rockets built by overseas companies.

Korea has built up the infrastructure for the development of space technology by developing :

- (1) Micro science satellites *Kitsat-3* (Uri-Byul-3, 100kg, indigenous development)<sup>6</sup> and
- (2) Korea Multi-Purpose Satellite-1 (hereafter referred to as "*KOMPSAT-1*; *Arirang-1*")<sup>7</sup> in 1999, which was the first multipurpose satellite in Korea.

In case of satellites, *KOMPSAT-1*, launched successfully in 1999, has been performing its mission beyond its designed lifespan, and yet has capability for two more years of operation. *Arirang I*, the multi-purpose satellite constructed by the Korea Aerospace Research Institute, was sent into orbit in 1999 in the U.S. It was the first practical satellite made by Korean scientists together with the U.S.-based firm TRW, *Arirang I*, the multipurpose satellite manufactured by KARI.

With *KOMPSAT-2*<sup>8</sup> continuing to progress, *COMS* (Communication, Ocean monitoring & Meteorological Satellite) program was set to begin in 2003. The KARI is scheduled to launch multipurpose satellite *Arirang II* in Russia in December, 2005.

The Ministry of Science and Technology (MOST)-affiliated KARI built the satellite with the Israeli company Elop on a 200 billion *won* budget. *Arirang II* will be equipped with a high-resolution camera to

provide the nation with its own satellite coverage.

KARI plans to launch more advanced satellites of the Arirang family - Arirang III and Arirang V - in 2008 and in 2009, respectively. Alongside satellite research, KARI is also studying rockets, which will put satellites into orbit under the Korea Space Launch Vehicle (KSLV) project.

KSLV-1 will take 100-kilogram-class locally assembled satellites to hundreds of kilometers above the ground in 2007 and KSLV-3 will transmit a 1.5-ton satellite to the heights in 2015.

All the liftoffs will take place in a launch tower-facilitated space center, which will be completed by 2007 on Oenaro Island in Kohung, South Cholla Province. In carrying out the satellite infrastructure projects, which cost trillions of *won* in taxpayers' money, Korean scientists are keeping cost effectiveness in mind.

Satellite technology is the most viable field in which Korea can nudge past established international giants based on its technical wizardry. Although we are a latecomer in satellite technology, we have improved very fast.

Now our satellite competitiveness is about 60 percent to 70 percent compared to that of global satellite makers. However, we expect the gap will be narrowed rapidly in the foreseeable future. When we finish developing Multipurpose Satellite III (Arirang III) and Multipurpose Satellite III (Arirang IV), we will occupy a global summit position as far as satellites are concerned.

Our long-term basic plan is to garner the ability to develop in space on our own and by 2015 to grow to be a global contender in this promising field. Korea aims to join the ranks of the world's top 10 aerospace powers by 2015 through intensive research efforts and timely investment.

### 3. Examples of Space Legislation in Other Countries

Any person proposing to launch a space launch vehicle or to operate a launch site within the Korea must obtain a license authorizing the launch or the operation of the launch site from the Ministry of Science and Technology. A Korean citizen or company proposing to launch outside Korea or to operate a launch site outside of Korea must also obtain a license authorizing the launch or the operation of the launch site from the Ministry of Science and Technology.

A foreign corporation, partnership, joint venture, association or other foreign entity controlled by a Korean citizen and proposing to launch from, or to operate a launch site within, international territory or waters must obtain a license if Korea does not have an agreement with a foreign nation providing that the foreign nation shall exercise jurisdiction.

Furthermore, we must study thoroughly other countries' space acts, such as the American, British, Russian, French, German, Canadian, Japanese, Swedish, Australian, South African etc. space laws relating to space activity and establishment of national space agencies etc. We must carry out a comparative legal analysis in order to unify and set standards for enacting it so as to be in conformity with international treaties, conventions and principles.

It is advisable for us to adopt the merit from the following countries' space legislation, so as to promote Korean space industry:

- (1) United States:
  - a. National Aeronautics and Space Act of 1958
  - b. Space Commercialization Promotion Act of 1996
  - c. Commercial Space Competitiveness Act of 1999
  - d. Space Transportation Service Purchase Act of 1998
  - e. Remote Sensing Application

- Act of 2002
- f. Space Exploration Act of 2002
- g. Title II, NASA Authorization Act of 1991
- h. Communications Satellite Competition Act of 1998
- i. Commercial Space Transportation Cost Reduction Act of 1999
- j. Public Law 105-303: Commercial Space Act of 1998
- k. 49 USC Chapter 701 - Commercial Space Launch Activities Act of 1984 and of 1994
- l. Land Remote-Sensing Commercialization Act of 1984
- m. Land Remote Sensing Policy Act of 1992
- (2) The United Kingdom: Outer Space Act of 1986
- (3) Russia: Law on Space Activity of 1993
- (4) Germany:
  - a. Gesetz zur Übertragung von Verwaltungsaufgaben auf dem Gebiet der Raumfahrt, 22 August 1998
  - b. Telecommunications Act of 25 July 1996
- (5) France: LOI n°61-1382 du 19 decembre 1961, Instituant un Centre National d'Etudes Spatiales
- (6) Canada: Canadian Space Agency Act of 2000
- (7) Japan
  - a. Law Concerning Japan Aerospace Exploration Agency of 2003<sup>9</sup>
  - b. National Space Development Agency Law of 1969
- (8) Sweden: Act on Space Activities of 1982
- (9) Australia: Space Activities Act of 1998<sup>10</sup>
- (10) Brazil: Law Establishing the Brazilian Space Agency of 1994: Law No. 8.854
- (11) Norway: Act on Launching Objects from Norwegian Territory into Outer Space of 1969
- (12) South Africa: Space Affairs Act No. 84 of 1993
- (13) Argentina
  - a. Creation of the National Commission on Space Activities of 1991: National Decree No. 995/91
  - b. Establishment of the National Registry of Objects Launched into Outer Space of 1995 : National Decree No. 125/95
- (14) Chile: Establishment of a Presidential Advisory Committee known as the Chilean Space Agency of 2001 : Supreme Decree No. 338
- (15) Ukraine: Decree of the President of Ukraine on Regulations for the National Space Agency of Ukraine of 1997 : No. 665/97

#### 4. Enactment of the Space Exploration Promotion Act

As space development has the peculiarity of a large amount of expense and high risk as a national strategic and public industry, the Korean government must establish the legal basis and push systematically and efficiently "*the fundamental space development and promotion plan*" every five years.

The *Space Development Promotion Bill* that was designed in the Ministry of Science and Technology in 2004 was passed by the State Council of the Korean government on December 21, 2004 and then the Korean government having submitted this bill to the National Assembly on December in 2004. This *Space Development Promotion Bill* was passed by majority resolution of the National Assembly on May 3, 2005.

The National Assembly transferred the *Space Development Promotion Act* to the

government on May 17, 2005, and the government proclaimed the Space Development Promotion Act with a law No. 7538 on May 31, 2005, but this act will be come into force in our country after six months from proclaimed date of this act from December 1, 2005.

This *Space Development Promotion Act* in Korea inserted a regulation relating to secure compliance with the Korean international obligations under UN Space Treaties and Conventions such as the Space Treaty of 1967, the Rescue Agreement of 1968, the Liability Convention of 1972, the Registration Convention of 1975, etc., covering the use of outer space, including liability for damage caused by space accident and registration of objects launched into outer space. It introduced a licensing regime for space activities carried out on by Korean nationals and companies.

This *Space Development Promotion Act* also prescribed the establishment of two organizations: the National Space Development Council and the Investigation Committee for Space Launching Accidents. In order to launch space objects, to manage the space center in Korea and to carry out the duty of supervision of the states regulated by the international treaty as a space developing country, those who launch space objects must obtain permission from the Ministry of Science and Technology and then register it in advance to the Ministry. After a space object is launched into earth orbit and beyond, they also shall register formally it with the Ministry within ninety days.

The Ministry shall inform and register the result of the launch to the United Nations in accordance with the Convention on Registration of Objects Launched into Outer Space of 1975.

Especially the abovementioned Act prescribed investigation and solution on space accidents caused by the launch of satellites and liability of compensation for damage caused by launching satellites to third

parties on the surface, as well as space liability insurance as a compulsory insurance.

In order to launch space objects and to manage the space center in Korea and to carry out the duty of supervision of states regulated by the international treaty as a space developing country, the Korean government established the legal basis and must push systematically and efficiently the fundamental space development and promotion plan.

Especially the *Space Development and Promotion Act* composed of 29 Articles prescribes mainly the following items:

- (1) The establishment of two organizations as the National Space Development Council and Organizing of the Space Accident Inquiry Committee
- (2) Government Responsibilities
- (3) Establishing a Basic Plan for Promoting Space Exploration
- (4) Designation of Space Development Institute for Space Exploration
- (5) Domestic and International Registration of Space Objects
- (6) Management of Space Objects Registry Ledger
- (7) Licensing of Space Launch Vehicles and Cancellation of Launch License and the Hearing
- (8) Liability of Compensation for Damages in accordance with Space Accidents
- (9) Third-Party Liability Insurance as a Compulsory Insurance
- (10) Utilization of Satellite Information and Support of Civilian Space Exploration Project
- (11) Rescue of Astronauts and Restitution of Space Objects
- (12) Penalty Clauses etc.

I would like to explain briefly the main contents of the new Space Development and Promotion Act as follows.

## **5. The Main Contents of the Space Development Promotion Act**

### **(1) Purpose (Article 1)**

The purpose of this act is to promote the peaceful use and scientific exploration of outer space; to ensure national security; to further develop the national economy; and to raise the national standard of living through the systematic promotion of space exploration and the effective use and management of space objects.

**(2) Government Responsibilities (Article 3)**

The Korean government shall carry out space exploration in conformity with space treaties concluded with other countries and international organizations; and shall use outer space peacefully.

**(3) Establishing of a Basic Plan for Promoting Space Exploration (Article 5)**

The Korean government must design a basic plan for promoting space exploration (hereafter referred to as "Basic Plan") for promoting space exploration and using and managing space objects. The Korean government develops a Basic Plan every five years and confirms it through deliberations of the National Space Committee.

**(4) Establishing of National Space Committee (Article 6)**

The National Space Committee (hereafter called the "Committee") is placed under the control of the President to deliberate provisions regarding space exploration including establishing the Basic Plan etc.

The Committee is composed of no more than fifteen members including the Chair. The Minister of Science and Technology becomes Chair of the Committee. The Council has a Practical Affairs

Subcommittee for Space Exploration Promotion to carry out its affairs effectively; the Vice-Minister of Science and Technology assumes the chair of this subcommittee.

**(5) Designation of Space Development Special Institute for Space Exploration (Article 7)**

The Minister of Science and Technology can designate a Professional Organ for Space Exploration (hereafter referred to as the "Professional Organ") for systematically and effectively supporting the space exploration project. Necessary working parameters and financial support for the Space Development Institute are set by Presidential Decree.

**(6) Domestic Registration of Space Objects (Article 8)**

If Korean citizens (including legal entities) wish to launch space objects in domestic or foreign country, a preliminary registration must be made to the Minister of Science and Technology in accordance with Presidential Decree one hundred and eighty days before the scheduled launch date.

If the Minister of Science and Technology investigates the launch plan and concludes that the launch plan does not demonstrate adequate liability of compensation for damages, he can demand further revisions to them. Any person, who makes a preliminary registration of space objects, must then formally register the space objects to the Minister of Science and Technology within ninety days after the space object reaches its planned orbit.

**(7) International Registration of Space Objects (Article 9)**

If there is a registration of space objects, the Minister of Science and Technology must register it to the United Nations by way of the Minister of Foreign Affairs and Trade in accordance with "Convention on Registration of Objects Launched into Outer Space".

**(8) Management of Registered Ledger for Space Objects (Article 10)**

The Ministry of Science and Technology must keep and manage the preliminary registry and the formal registry ledger of space objects.

**(9) Licensing of Space Launch Vehicles (Article 11)**

If a person who wishes to launch space launch vehicles in domestic or foreign country, he must obtain a license from the Ministry of Science and Technology.

Any person who wants to obtain a launch license must submit the launch plan including a safety analysis report, the operational plan of payloads, and the plan for liability of compensation for damages to the Minister of Science and Technology.

When the Minister of Science and Technology grants a launch license, he has to consider the following subsections.

- (a) purpose of space launch vehicles
- (b) the safety management of space launch vehicles
- (c) insurance of liability for damages in the case of space accidents
- (d) other items including the necessary items for launch preparation, transportation of space launch vehicles

#### **(10) Cancellation of Launch License and the Hearing (Article 12)**

The Minister of Science and Technology may revoke a launch license under any of the following subsections.

- (a) in case of delaying the launch for more than one year from the permitted launch date without due cause
- (b) in case of obtaining a launch license by false means
- (c) in case of demanding from a director of a related state administrative organs for the cancellation of the license in anticipation of serious threats to national security
- (d) in the case of any abnormalities in safety including the fuel leakage before launching by space launch vehicles or defects in the communication systems
- (e) in case of failing to obtain a license for changes due to violations of Article 11 Section (1)
- (f) in case of the person who receives the launch license of space launch objects not conforms to any part of Article 12.

#### **(11) Liability of Compensation for Damages caused by Space Accidents (Article 14)**

A person who launches space objects must bear the liability of compensation for damages caused by the space accidents of the space objects. The sphere of liability of compensation for damages and the limit of responsibility are specified by other laws.

#### **(12) Third-Party Liability Insurance (Article 15)**

Any person seeking to obtain a launch license of space launch vehicles must obtain liability insurance for the purpose of compensating for damage in consideration of the possible occurrence of a space accident.

#### **(13) Organizing of the Space Accident Inquiry Committee (Article 16)**

The Minister of Science and Technology may establish a Space Accident Inquiry Committee in order to investigate a space accident.

The Space Accident Inquiry Committee will consist of five to eleven members chosen by the Minister of Science and Technology from specialists in related fields. The Minister of Science and Technology will appoint a Chair among the members. However, in relation to the national security established by Presidential Decree, a separate Inquiry Committee can be composed according to Presidential Decree.

The Space Accident Inquiry Committee can request cooperation with the director of the related administrative organs in connection with the entrance and exit control to the area of space accident and other investigations of relevance.

Necessary provisions on the time of composition, qualifications of the members, operations, etc. of the Space Accident Inquiry Committee must be set by Presidential Decree.

#### **(14) Utilization of Satellite Information (Article 17)**

The Minister of Science and Technology can

take action, such as designating or establishing an organization responsible for promoting the spread and practical use of satellite information gained by the artificial satellite developed in accordance with the Basic Plan. In this case, geographical information in accordance with "Act on the Structure and Utilization of National Geography Information System" is to be agreed upon with the Minister of Construction and Transportation.

The Minister of Science and Technology may provide funding for promoting the spread and practical use of satellite information within the limits of budgetary appropriation.

The government should not use satellite information to infringe on the private lives of individuals.

#### **(15) Support of Civilian Space Exploration Project (Article 18)**

The Minister of Science and Technology should design policies such as the provision of human resources, tax benefits and financial support, and preferential purchase etc. for attracting civilian space exploration projects and for enlarging civilian research and development investment.

#### **(16) Rescue of Astronauts (Article 22)**

The Korean government shall supply support in the case that an astronaut from foreign space objects makes an emergency landing, meets with a disaster, or is involved in an accident in Korean territory or neighboring high sea. The Korean government will assist the astronaut in returning to the country of launch, country of registration or international organization responsible for the launch of said space objects.

#### **(17) Restitution of Space Objects (Article 23)**

In the case of foreign space objects falling to or making an emergency landing on Korean territory, the Korean government must return the foreign space object to the launching state

or registered country or international organization responsible for the launch.

#### **(18) Penalty Clauses (Article 27)**

Any person not obtaining a license (including license on changes) in accordance with Article 11 and launches a space launch vehicle is sentenced to imprisonment up to five years, or faces fines not exceeding 50,000,000 won.

### **6. Conclusion**

Korea has been carrying out its space program step by step according to the National Space Program. Several accomplishments in 2005 marked a milestone in Korean space technology development. Korea also will continually strengthen the exchange and cooperation with all the countries in the world under the principle of equality, friendship relations and mutual benefits. Together with all other peoples around the globe, Korea will make due contribution towards the peaceful utilization of space resources and promotion of human progress and prosperity.<sup>11</sup>

If Korean nationals and companies intending to launch or procure the launch of a space object, operate a space object or carry on any other activity in outer space, they should make themselves familiar with the provisions after this Act is passed by congress.

According to my personal opinion, it is necessary for us to enact the Draft for the Establishment of a new Korea National Space Development Agency (KNSDA: tentative title) like NASA in the USA, ESA in Europe, JAXA in Japan etc. The Draft for "KNSDA" must include the following items:

- (1) Purpose
- (2) Objectives
- (3) Main Office, Legal Personality and Capital
- (4) Executives (Directors and Auditors) and Employees
- (5) Scope of Space Activity

- (6) Respect for the Characteristic of Academic Research
- (7) Conclusion of Insurance Contract relating to the Launch of Satellites
- (8) Disposition of Reserve Fund
- (9) Gratuitous Use and Lent of the National Property
- (10) Issue of Debenture etc.

It is indeed desirable for us to establish a new Korean National Space Development Agency in order to efficiently develop space industry in Korea in the future.

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<sup>1</sup> <http://satrec.kaist.ac.kr/english/SaTReC.html>

<sup>2</sup> <http://satrec.kaist.ac.kr/english/SaTReC.html>

<sup>3</sup> <http://www.kt.co.kr/kt/eng/frame.html>

<sup>4</sup> KoreaSat Unit 1 and 2 are loaded with 12 FSS (Fixed Satellite Services: for communication purpose) transponders and 3 DBS (Direct Broadcasting Services: for broadcasting purpose) transponders, respectively, and operate at geostationary orbit (GEO) 36,000Km over the equator, and 116 degrees of east longitude. Centering on Muju, North Jeolla Province, Korea (127 degrees 5 minutes of east longitude, 36 degrees of north latitude), KoreaSat Unit 1 and 2 cover the entire Korean Peninsula, the Japanese Archipelago, and part of China and Russia.

<sup>5</sup> Launched on Sept. 5, 1999, KoreaSat Unit 3 has a 15 year-lifecycle, and is loaded with 24 units of FSS transponders (Ku-band) and 6 units of DBS transponders, accommodating the combined capacity of KoreaSat Unit 1 and 2 transponders. Furthermore, it is loaded with 3 Ka-band transponders, making available high-speed satellite communications services. KOREASAT 3, as a cutting-edge dual-purpose satellite for communications and broadcasting, has set the stage for transforming Korea into an information powerhouse in the future, by providing up to 168 satellite broadcasting channels and high-speed multimedia services.

<sup>6</sup> <http://satrec.kaist.ac.kr/english/SaTReC.html>

<sup>7</sup> [http://www.kari.re.kr/new\\_html/English\\_version/E\\_inde4.htm](http://www.kari.re.kr/new_html/English_version/E_inde4.htm)

<sup>8</sup> [http://www.kari.re.kr/new\\_html/English\\_version/E\\_inde4.htm](http://www.kari.re.kr/new_html/English_version/E_inde4.htm)

<sup>9</sup> [http://www.jaxa.jp/about/gaiyo/law/law\\_e.pdf](http://www.jaxa.jp/about/gaiyo/law/law_e.pdf)

<sup>10</sup> [http://www.osa.unvienna.org/SpaceLaw/national/australia/space\\_activities\\_act\\_1998E.html](http://www.osa.unvienna.org/SpaceLaw/national/australia/space_activities_act_1998E.html)

<sup>11</sup> [http://www.cnsa.gov.cn/main\\_e.asp](http://www.cnsa.gov.cn/main_e.asp)