

Public Administration of Space Activities of Individual Countries of the World at the Present Stage

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The article analyzes the public administration of space activities in such countries as Australia, Brazil, South Korea, People's Republic of China, and the United States of America. Regulatory legal acts intended to regulate the space activities of some European Union member states were also analyzed. Comparing the legislation of different countries with different legal systems allowed us to state that there are serious obstacles on the way of combining the efforts of different countries in the field of space activities due to the national and cultural specifics of space exploration by representatives of different peoples. Therefore, this specificity determines the priorities for each specific country in the space sector. It is found out that at the present stage, global space activities are faced with the task of active development of public-private partnership, while the characteristic features for this area are not clearly defined. There is a need for a conceptual understanding of the role and place of private operators of commercial space services. The problem of scientific justification of rational forms of intra-industry

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and intersectoral integration and cooperation in the context of the new space doctrine is waiting for its solution.

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Introduction

The gradual advance of humanity into space is of strategic importance for its evolution. The beginning of the development of infinite areas and space resources, the possibility of humanity reaching a new superglobal level of security and sustainable development no longer seem completely unattainable, for the first time they become an important practical direction for its promising accelerated development (Soroka, 2020). In a global sense, outer space was regulated by international law. This meant that all countries and actors had to work together to develop effective space legislation for future needs. However, since the recognition of outer space as an object of regulation, the national legislation of a particular country has also begun to gain momentum.

At the present stage, at least 26 States (14% of the members of the United Nations) regulate space activities (A/RES/70/224, 2015). However, despite the fact that standards and rules for space activities are being created at the national level, problems arising during its implementation (space debris, the fall of space bodies, the arms race, etc.) require joint efforts on the part of modern states. Therefore, the establishment of both national and international standards, which are designed to provide reliable and understandable rules for the implementation of space activities, is an extremely important area of legal regulation of the space industry. After all, by studying the specifics of the legal support of space activities of an individual state, independent institutions can improve their own space infrastructure and, borrowing foreign experience, create new, separate, or joint space projects.

With the appearance of a large number of private actors, the importance of regulating commercial space activities is now quite significant. State control and supervision of commercial space activities is essential for the protection of public safety, property and the environment and for the fulfillment of the state's obligations under international law. Taking this into account, it is relevant to analyze the licensing systems of UN member states that have adopted national regulatory legal acts in the field of space activities, based on the following criteria: legal basis; status of the licensing authority; licensed types of space activities; license requirements and conditions; terms of issuance and validity of licenses; consequences of violation of license requirements and conditions; license control.

Features of Public Administration of space activities in individual countries

Australia

The Australian Space Agency was established under the Ministry for Industry and Science to coordinate civil space activities in the government and support the growth and transformation of

the space industry on July 1, 2018 (About, 2023). The same year, the Australian space (Launches and Returns) Act (Space, 2018) was passed with the aim of: a) establishing a system to regulate space activities carried out either from Australia or by Australian citizens outside Australia and regulating the launch of high-power rockets in Australia; b) ensuring a reasonable balance: 1) between removing obstacles to participation in space activities and encouraging innovation and entrepreneurship in the space industry; 2) between the safety of space activities and the risk of harm to people or property as a result of space activities; c) fulfilling certain obligations of Australia under the UN outer space treaties.

It was from this time that the public administration of Australian space activities began.

According to the stated law, for the implementation of space activities in Australia, the following types of activities require approval: launching a space object from Australia; returning a space object to Australia; launching a space object abroad (for Australian citizens with a share of ownership); returning a space object abroad (for Australian citizens with a share of ownership); operating a launcher in Australia; launching a powerful rocket from Australia (Regulating, 2023). Therefore, space activities on the territory of Australia, as well as if such activities are carried out by Australian citizens outside Australia, are subject to the license regime.

In Australia, launching a space object is defined as launching an object from an area to an altitude of more than 100 km above sea level or attempting to do so. A launch permit is also required to launch a space object or a specific series of space object launches from a launch facility located in Australia. Permission to launch is granted after the licensing authority has satisfied itself that the applicant demonstrates its competence in carrying out the launch, and that such actions will not cause significant damage to public health or property or public safety. The launch of a space object must not be contrary to Australia's national security, foreign policy, or international obligations, and the applicant must meet the necessary financial and insurance requirements (Space, 2018).

The Australian Civil Space Strategy 2019-2028 was adopted to address the challenges of fierce competition and the rapidly growing space sector, while increasing scale and removing market barriers (Australian, 2019a). The strategy defined four strategic pillars: "Open the door internationally; develop national capability in areas of competitive advantage; ensure safety and national interest are addressed; and inspire and improve the lives of all Australians" (Australian, 2019b: 4). The strategy has set an ambitious goal of creating 20,000 jobs in Australia's space sector by 2030.

In addition, it should be noted that Australia has created a space infrastructure fund worth 19.5 million dollars (Space, 2023). In October 2022, the government announced that it would spend almost 1.2 billion dollars on locally produced satellites (Seidel, 2022). Australia is also building its own spaceports (Goswami, 2023).

Brazil

Brazil also regulates space launches from its territory. The central body in the field of space activities is the Brazilian space agency (Agencia Espacial Brasileira) (Agência, 2023), which is part of the Ministry of Science, Technology, Innovation and communications, but reports directly to the president of Brazil (Law, 1994). The Brazilian space agency is a public institution responsible for shaping, coordinating and implementing Brazil's space policy. The Brazilian space agency is responsible for updating the National Space Policy and coordinates and monitors the National Space Programme.

To perform its duties, the Brazilian space agency has an advisory High Council consisting of representatives of various ministries and departments involved in the space sector, as well as members of the scientific community and the industrial sector (Sistema, 2020). In order to implement the space program and international treaties, the country's leadership adopted a joint order signed by the Minister of Science, Technology and Innovation, the Minister of Development, industry and foreign trade, which approved regulations on the procedures and definition of requirements necessary for the application, evaluation, sending, control, monitoring and inspection of licenses for space operations in Brazil (Portaria, 2014). In accordance with this regulation, the Brazilian space agency issues licenses for space activities, controls, monitors and inspects licensees and their activities. It can also initiate administrative proceedings for violating licensing requirements and recommend applying sanctions to violators. Administrative sanctions that can be applied to the licensee in case of violation of the license terms are as follows: warning, temporary termination of the license, and cancellation of the license (Mkrtchian et al., 2019). However, the application of these sanctions does not exempt from civil or criminal liability if there are grounds for this.

A license to carry out space activities is granted to individuals, legal entities with a headquarters or representative office in Brazil that meet the technical and financial requirements for the period specified in the act itself, taking into account the period of depreciation of investments that will be applied by the licensee. Documents submitted for obtaining a license consist of several blocks: 1) legal block (documents confirming the legal status of the applicant are submitted); 2) Technical block (documents related to the technical side of the activity, description of the application, confirmation of the technical qualification of performers, certificates of conformity, etc. are submitted); economic and financial block (documents confirming the financial viability of the declared activity, insurance contract to cover possible losses to third parties in accordance with the degree of risk of the activity to be carried out, etc. are submitted); fiscal block (documents confirming the tax status of the subject, registration with the tax authorities, payment of all fees and taxes are submitted) (Portaria, 2014).

South Korea

South Korea has not yet established a space agency. Public administration of space activities is carried out by the Ministry of Science and ICT and a special body – the National Space Committee of South Korea, which reports to the president of the country. South Korea's space policy is based on the National Space Program and three space acts (Kim, 2012). Korea's space Relations Act is divided into three parts: (1) The Aerospace Industry Development Promotion Act (Aerospace, 1987), (2) The Space Development Promotion Act (Space, 2005)¹², and (3) The Space Damage Compensation Act (Act, 2007).

South Korea's space policy is based on the short, medium- and long-term national basic plan for Space Development. The long-term national basic plan is designed for 20 years and defines the long-term orientation and goals of space development (Kim, 2012: 15). The first one was adopted for 1996-2015 (An, 2020). The medium-term plan is adopted for five years and should contain the following points: 1) the purpose and scope of the policy for the development of space activities; 2) organizational structure and development strategy; 3) implementation plan; 4) plans for improving the infrastructure necessary for the development of space activities; 5) investment planning for obtaining financial resources necessary for development; 6) plans for training specialists; 7) plans for international cooperation; 8) guidelines; 9) issues related to

the use and management of space objects; 10) practical programs that use the results of space activities, such as satellite information, etc.; 11) other provisions defined by the Presidential Decree, on promoting the development of space activities, the use and management of space objects (Space Development, 2005).

Therefore, according to the requirements, a person seeking to engage in space activities must first obtain a license from the Ministry of Science and Technology of South Korea. The license is issued for: launching from the territory or from objects within the territory of South Korea or objects under its jurisdiction; launching in a foreign country using a space rocket vehicle owned by the Korean government or citizens of South Korea. When issuing a license, the Minister must take into account the purpose of launching, managing vehicle safety, and the existence of a liability insurance contract (Space Development, 2005). Anyone who wants to get permission to launch space rocket vehicles insures such activities. Third-party liability insurance should be one that can compensate for damage that may occur due to space accidents. The minimum amount of third-party liability insurance is established by decree of the Minister of the Ministry of Science and Technology.

Like other leading space countries, South Korea has launched its space programs primarily through government research and development. Although South Korea began its Space Development Program much later than other space countries, it appears to have made significant progress in a relatively short period of time, including the development of satellites using local space technologies, Korean Space Launch Vehicles (KSLV-I, II) (Ahn, 2019). With regard to National Space Legislation, Korean space acts, for the most part, implement most of the elements recommended by the UN General Assembly. To improve coordination between stakeholders, it is planned to create a national space agency next year.

The People's Republic of China

Public administration of space activities in China is carried out by the Commission of Science, Technology, and Industry for National Defense (SASTIND) (State, 2023), which is under the direct supervision of the Ministry of Industry and Information Technology. As an administrative and regulatory body, SASTIND serves the needs of national defense, military forces, the national economy, and military organizations (State, 2023). COSTIND controls most of the defense industry as the main administrative body of China's national space industry and civilian space activities. The adoption of comprehensive administrative regulation of outer space was one of the highest priorities in the late 1990s. However, his legislative efforts were limited.

As part of COSTIND, the China National Space Administration (CNSA) (China's, 2023) was established on April 22, 1993, in accordance with the decision on the structural reform program adopted by the State Council of the National People's Congress of the eighth convocation. Its main responsibilities are: signing state cooperation agreements; representing China in international organizations and events; and working with foreign national space agencies (Peng, 2023).

The analysis of China's regulations on registration and licensing of space activities makes it possible to state that they apply a minimalistic approach to fulfilling China's obligations under international treaties (Ma & Soroka, 2020). Thus, Interim Measures on the Administration of Permits for Civil Space Launch Projects (Interim, 2002) were adopted to introduce a licensing regime for certain types of space activities by private space companies in China.

Both physical and legal licenses can be obtained. No later than 90 days before the scheduled launch, a package of documents approved by the licensing measures is submitted to SASTIND. To obtain a license, the applicant will need to ensure that the draft meets a number of requirements, in particular: comply with national and state laws, especially those related to state secrets; the activity should not threaten China's national security; it should not act contrary to China's international obligations; it should not threaten public safety (Soroka, 2020). In addition, the applicant must show that they have the appropriate financial and technical potential to implement the project. The license terms require the licensee to enter into an insurance contract to cover losses to third parties, as well as insurance to cover losses for damage or destruction of a space object that will be launched (Interim, 2002).

In China, Space insurance services can only be provided by national providers. In particular, two companies have played an important role in promoting space insurance in China, namely people's Insurance Corporation of China (PICC) (The People's, 2023) and China Pacific Insurance Group (CPIG) (About, 2023). The applicant must contact insurance companies in China to determine which policy must be purchased to obtain a license. In accordance with the regulations of the People's Republic of China on the launch and operation of space objects and the implementation of other activities in outer space (An Ordinance, 1997).

So, from the beginning of the creation and further improvement of the socialist system and market economy, the development of space activities in China was engaged in the state. And as indicated in the first White Paper (2000), the state managed space activities through macro-control (White, 2000). In other words, the role of the state in the development of the space sector was and remains the leading one.

United States of America

In the United States of America, The Commercial Space Activities Act of 1984 (CSLA) (Chapter 509, 2011) authorized the Federal Aviation Administration (FAA) to issue licenses for space activities. The Federal Aviation Administration is the administrative body that issues licenses for commercial space activities, as well as monitors and supervises compliance with license conditions. Management is carried out by the director, who is appointed and removed from office by the US Secretary of Transportation (Chapter III, 1986). The FAA was created to protect the interests of US citizens, property, and national security during space activities, as well as to encourage commercial space transportation (Licenses, 2023). These rules do not apply to the activities of federal agencies such as NASA, and do not regulate the launch of so-called "amateur rockets." A US citizen or legal entity registered in the United States can apply for: 1) a launch license that allows the licensee to perform only those launches that are listed in the license (special license), 2) a launch operator license, according to which the licensee can perform any launches that fall under the broad parameters described in its license (operator license) (Chapter III, 1986).

A special launch license allows the licensee to perform one launch or a specified number of identical launches from a single spaceport. The launch vehicle for each authorized launch should be the same, and the launch parameters should not pose any problems to public safety or create other problems that may threaten the national interests of the United States. The licensee's permission to conduct launches is terminated upon completion of all launches authorized by the license, or upon expiration of the validity period specified in the license, whichever comes first. The launch operator's license allows the licensee to launch from the specified launch pad using

the same family of launch vehicles that carry certain classes of payloads within the range of launch parameters defined by the license. Initially, the operator's license was issued for two years. In accordance with the new section 415.3 (b) – for five years from the date of Issue (Chapter III, 1986). The ability to issue a launch operator license, as opposed to requiring a launch license for each launch (special license), has advantages for both the licensee and the FAA. Although preparing applications and verifying the launch operator's license will be more than for a special license, using this license class will ultimately reduce costs and improve efficiency for licensees by reducing the number of applications owned by the company. In this regard, the longer the license validity period, the more important role monitoring of requirement compliance plays, which allows the FAA to provide safety control over how the licensee fulfills its obligations.

The licensing process consists of several stages: pre-application consultation; policy review and approval; safety review and approval; payload review and determination; financial responsibility determination; environmental review; compliance monitoring. According to the FAA, 450 licensed launches were performed in the United States (Licenses, 2023).

Thus, at the present stage, the US policy in the field of space activities has taken shape in an independent and significant sphere of national policy and international relations. The long-term prospects of the country's development, its position in the world, success in global competition, etc., largely depend on it. The crisis of the 2000s led to a rethinking and reform of space programs and space policy and the development of a new space doctrine. The main principles of the new doctrine were: reducing manned projects and, giving preference to automatic flights; reallocating areas of responsibility between NASA and the private commercial sector. As a result, the federal sector is responsible for developing strategic directions of state policy and supporting basic space research, while the private sector is responsible for manned flights and scientific and practical use of the Earth's orbit.

The main mechanisms of national regulation of space activities of the United States are: 1) state space policy and implementation of space programs; 2) development of commercial opportunities, search and promotion of commercial use of outer space (establishment of legal bases for space trade, transportation, space commercialization management); 3) allocation and application of incentive measures in the form of awards, grants for training, scholarships; 4) licensing, insurance; 5) interdepartmental coordination of civil and military administration; 6) cooperation of the United States with other countries and organizations in this area, etc.

European Union

The Austrian federal law on space activities, adopted by the National Council on December 6, 2011, came into force on December 28, 2011 (Austrian, 2011). It applies to space activities carried out: on the territory of Austria, on board ships or aircraft registered in Austria. Space activities can be carried out by an individual with Austrian citizenship or legal entities registered in Austria. A permit for space activities is issued by the Austrian Minister of transport, innovation and technology if the applicant proves the necessary reliability, capability and experience to carry out space activities, as well as enters into an insurance contract that covers a minimum amount of 60,000,000 euros for the insured event. In addition to the requirements that are usually imposed on the applicant for a license to carry out space activities, he must provide information on existing measures to prevent the creation of space debris, as well as other documents that are listed in the decree of the Federal Minister of transport, innovation and technology in compliance with the above-mentioned federal law on space activities (Regulation, 2015).

The Netherlands has also adopted a number of space regulations. In accordance with the rules on space activities and the creation of a register of space objects (the Law on space activities) (Rules, 2006). The Netherlands requires licensing the launch or return of space objects, management of space objects performed from its territory or from a Dutch ship (Rules, 2006). The license is issued by the Ministry of Economic Affairs after verification of the submitted documents and circumstances specified in the Law on space activities. The application may be submitted by a citizen of the Netherlands or a legal entity registered in its territory. The license may be withdrawn or revoked in case of violation of the license terms.

In France, according to the law, it is also necessary to obtain a license to carry out space activities (Loi, 1961). Applicants for a license include: 1) launch entities, i.e., those who launch from French territory or from an object under the jurisdiction of France, or those who plan to return the object to the national territory or to an object under the jurisdiction of France; 2) a French operator, regardless of where the launch takes place; 3) a French citizen or a corporation with headquarters in France, an operator or not, launching or managing a space object; 4) a previously authorized subject of space activity which, in accordance with French law, wants to transfer control or command of a space object (Loi, 1961).

Consequently, in the EU member states, public administration of space activities mostly has common features. To launch or return space objects or manage space objects, it is necessary to obtain a license; both individuals and legal entities can obtain a license to carry out space activities. Only the public administration body that regulates these issues and carries out licensing activities is distinguished.

Conclusions

All of the above makes it possible to formulate the following conclusions regarding the public administration of space activities in different countries:

1) The institution of licensing is a natural and necessary measure for regulating and supervising commercial space activities of the private sector;

2) A number of different issues are subject to settlement, in particular, the launch of objects into space and their return from space, the operation of the launch or re-entry site and the operation and management of space objects, etc. Separately, it should be pointed out that states have obligations to decide and monitor the activities of non-governmental organizations in outer space, as well as establish administrative and legal mechanisms for regulating national commercial space activities;

3) Of all the countries of the world, only 26 have adopted regulatory legal acts in the field of commercial space activities. National Space legislation can be contained in single acts (Belgium, Brazil, Chile, etc.) or in a combination of national legal documents (Argentina, Austria, Canada, France, etc.). Some countries regulate space activities at the level of bylaws (China, India). In addition, some states have adapted their national legal frameworks to meet specific needs and practical considerations regarding the scope of space activities and the degree of participation of the commercial sector (United States, Luxembourg, etc.);

4) Most countries require subjects of commercial space activities, in addition to obtaining a permit to carry out such activities, to obtain a license to carry out certain types of space activities. Such licenses are issued for one-time launch (return of a space object) or series (operator's license); management of a space object; operation of launch sites (spaceports). Most countries allow both citizens and legal entities to participate in commercial space activities (for example, Ukraine allows only legal entities).

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