

NATIONAL LIABILITY FOR DAMAGE OUTSIDE TERRITORY CAUSED BY SPACE OBJECTS AND SUGGESTION TO CHINA'S LEGISLATION

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Abstract

This paper discusses on national liability for damage outside territory caused by space objects. Although precautionary measures are taken in order to reduce the high risk in outer space activities, sometimes damages do occur incidentally. Potential risk dangerousness caused by space objects should not be neglected. As signatory to the Outer Space Treaty and the Liability Treaty(both defined infra), China is now pressing on with enacting domestic law on space activity to acclimatize itself to the rapid growth in space field. Therefore, making a study of national liability for damage outside territory caused by space objects and similar regulations of States' domestic laws helps us to learn from others' strong points and offset our weakness and adjust measures to local condition. To start with, this paper analyses the dual responsibility frame of the two international treaties. Secondly, it discusses the difference and links between national liability for damage outside territory caused by space objects and national liability in traditional international law. Finally, it raises some constructive suggestions to China's legislation on space.

Great achievements had been made since the Sputnik 1, the world first satellite, was launched. Application of space technology, such as the development and utilization of observation satellite, telecommunication satellite, navigation satellite, have been infiltrated into various field of national economy and the people's daily livelihood, and also is closely linked with thousands of household. As these activities bring great benefits to mankind, the potential jeopardy, especially the possible risk made by use of nuclear force in outer space, should not be neglected, such as the crash of Cosmos 954, the Radar Ocean Reconnaissance Satellite which was powered by a nuclear reactor.^① Although various precaution measures are taken to prevent the high risk of space activities, accident caused by space objects do occur and cause damage. This paper will review national liability for damage outside territory caused by space objects as well as national liability in international law, and raise some personal suggestions to China's legislation on space.

NATIONAL LIABILITY FOR DAMAGE OUTSIDE TERRITORY CAUSED BY SPACE OBJECTS

As is generally known, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (hereinafter

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referred to as “the Outer Space Treaty”) came into force in October, 1967. According to the Outer Space Treaty, State Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty.

Convention on International Liability for Damage Caused by Space Objects (hereinafter referred to as “the Liability Treaty”) came into force in 1972. The Liability Treaty provides that a launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or elsewhere than on the surface of the earth or to aircraft flight, and in the event of damage being caused elsewhere than on the surface of the earth to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage is due to its fault or the fault of persons for whom it is responsible.

As the Treaties mentioned above, no matter outer space activities are carried on by governmental agencies or by non-governmental entities, it shall be considered national acts of a launching State, which shall bear strict liability for

compensation. In other words, all actual subjects engaged in space activity, no matter what status they are in domestic law, their activities in outer space are considered national act without exception. The liability for damage outside territory caused by space objects is all attributable to the State. Non-governmental entities, which carried out the outer space activities, shall not bear the liability for damage in international law. What it takes only is responsibility based on domestic law or on the launching contract.

COMPARISON BETWEEN NATIONAL LIABILITY FOR DAMAGE OUTSIDE TERRITORY CAUSED BY SPACE OBJECTS AND TRADITIONAL NATIONAL LIABILITY IN INTERNATIONAL LAW

Differences between these two

Firstly, the two kinds of liability are different in nature. Traditional national liability is based on internationally wrongful act of a State. The wrongfulness of an act of a State usually means that the conduct of a State breached its valid international obligation assumed by it. All conducts of a State which breach rules and principles of international law will entail national liability of that State. For instance, the territorial water of a State is invaded by a warship of another State, or diplomat is immured by another State etc. These acts, which violate the principle of sovereignty over territorial water and the principle of diplomatic immunity, cannot but lead to national liability of the State. As supplementary to and development

of traditional national liability, liability for damage outside territory caused by space objects does not depend on wrongfulness of an act, but on the damage fact which occurred outside territory. This is the main difference between these two.

Secondly, traditional national liability is based solely on subjective negligence or intent of a State, whereas national liability for damage outside territory caused by space objects applies to strict responsibility, and the State is not asked to have the fault in subjective aspect. Even if the occurrence of damage fact is predictable, it does not constitute violation to duty of the launching State.

Thirdly, for traditional national liability, if a State is able to prove it have taken all the reasonable measures to prevent the occurrence of event which breaching its duty. Then even if fails, it is still exempt from liability. But for national liability for damage outside territory caused by space objects, generally, as long as the damage outside territory occurred, the State shall bear the liability for compensation in addition to Article 7 of the Liability Treaty, the exoneration clause provided by the Liability Treaty.

Finally, for traditional national liability, it is enough reason for a State to take actions if another State breached its duty but did not cause actual damage. But for national liability for damage outside territory caused by space objects, as long as damage is actually caused by a State, the injured State has the right of claim. even if a State take remedial measures, such as giving compensation to the duty which is breached, it shall not continue this act freely. Because it is internationally wrongful act prohibited by international law. It might constitute

an international crime if it is serious and that will no longer be solved only by taking remedial measures. On the other hand, for national liability for damage outside territory caused by space objects, the State is free in its conducts as long as the damage caused by the launching State are given just and reasonable compensation.

Links between these two

Firstly, the concept of national liability for damage outside territory caused by space objects can be regarded as derivation from the concept of traditional national liability. Both of these two aim at defining international liability which a State shall be liable for the consequence of conduct. In fact, traditional national liability itself contains certain element of national liability for damage outside territory caused by space objects. There is a rule in traditional national liability system that a State shall still make some compensation for the injured State after the wrongfulness of an act of a State was precluded. For instance, a State shall still make some possible compensation for an act, though it does not constitute internationally wrongful act in a situation of distress or due to force majeure, that is the occurrence of an irresistible force or of an unforeseen event, beyond the control of the State, if damage existed, a State should try its best to diminish damage consequence and be liable to pay for damage with the principles of justice and equity. If a State refuses to fulfill its duties, it would entail national liability of the State. In this sense, national liability for damage outside territory caused by space objects

is an organic part of national liability, not the opposite side to it.

Secondly, national liability for damage outside territory caused by space objects supplements and improves traditional national liability. Although activities in outer space may cause damage consequence, the act itself is not prohibited by international law. It is hard to be solved satisfactorily for damage consequence caused by the act in accordance with traditional national liability. Considering the limitation of traditional national liability and the need of reality, the aim and effect of national liability for damage outside territory caused by space objects is not to weaken traditional national liability, but to further improve and complement traditional national liability theory.

SUGGESTIONS TO CHINA'S LEGISLATION

According to statistics of UN, more than 20 countries and regions promulgated domestic law or regulation on space and space activity. Along with the development of space technology on global scale, international cooperation of space activity is increasing gradually. As a subject of international space law, China shall ensure the fulfillment of all international obligations in the field of space activity and shall bear responsibility under generally recognized standards of international law and the provisions of international treaties to which it is party. China urgently needs legislation backup in support of her space technology development. Therefore speeding up the course of legislation on national liability for damage outside territory caused by

space objects also is one of important embodiment to fulfill international conventions.

Establishing integrated national mechanism of risk guarantee

In order to prevent serious consequence caused by space objects, it can establish risk reserves system through legislation, i.e. enterprises engaged in outer space activity shall provide an insurance limitation for damage consequence occurred possibly. The exceeded part will be afforded by national finance. For instance, according to the statement^② made by Arianespace, found by 11 European countries, Arianespace guarantee to pay maximum 400 million French francs for compensation, and the French government afford the exceeded part. Arianespace ask every client to pay a risk reserve, about 10% of launching fee, for any damage may caused by space objects in addition to launching fee. In fact, there is similar governmental document in China on civil nuclear activity. It provides that operator of nuclear activity shall be liable to pay compensation for damage caused by accident on principle, and if actual damage exceed the limit operator shall be liable for, Chinese government shall afford the exceeded part. The existing practice of Chinese government prescribes that the nuclear activist, such as operator of nuclear power station shall be liable to pay compensation, not extending Renminbi (RMB) 18 million Yuan (about US\$2.18 million) for actual damage caused by a nuclear accident, and the operator could apply for national financial indemnification, maximum 300 million RMB Yuan (about US\$34.1

million) if actual damage exceed the limit. It could be used for reference in the course of legislation on space in respect of national liability for damage outside territory caused by space objects. Chinese government could consult the practice in civil activity of nuclear field.

Implementing license system for outer space activities

To ensure space activities of non-governmental entities according with international space treaty, those countries which considered as the major space powers in the world have established strict supervision through space legislation, including license system. From a point view of legislation on space activity abroad, license system for space activities is one of important content in space law of these countries. It demands standard and perfect legal system to guarantee its implementation. With the trend that the subject of space activity is becoming more and more in China, China needs to consult the successful experience of those countries which are advance in space technology and legislation. It is one of effective measure to establish license system for space activities and canon commercial space activity in China.

Since 1990s, a trend of commercialization in space activity become more obvious. This tendency is growing more rapidly as we entered 21st century, believed as New Space Age. For space undertakings in a turning period, commercialization in space activity is a chance as well as a challenge. Although investor in space activity in China is still mainly state-owned enterprise, subject of investment is becoming more and

more, and non-government-owned enterprises show strong interests to participant in civil space activity. It is fully necessary to establish license system for ensuring commercial space activity going on orderly; it is also useful to participant in international space technical application and market competition.

The basic frame for license system on space activities may include

The scope of acquiring a government license on space activities

It must be acquired a government license for engaging in the following space activities: space exploration and use of outer space, transnational space activities, development and manufacture of spacecraft and space launch vehicle, commercial launch, other space activities stipulated by authorities concerned.

The variety of license and condition for acquisition

Depending on the characteristic of different space activities, license will be issued accordingly, such as manufacture license, operational and management license, launch license etc., and condition for acquisition shall been set up. Meanwhile, China has began to draft "Interim provisions on the management of civil space launch".

The procedure for examination and approval

All engaged in space activity within license scope shall apply for license to authorities concerned and submit

corresponding relevant qualifications materials. Authorities concerned shall examine applicant's qualification, therefore make a decision to whether to approve or disapprove the application.

Establishing compulsory third party insurance

Third party liability insurance provides insurance protection for physical injury and property loss caused during launch preparation and launching. The typical case is damage to third party caused by satellite launch failure, falling of satellite and launch vehicle debris, downfallen satellite from orbit, collision between satellites, such as experiment satellite of Japanese Institute of Aeronautics and Astronautics, did not entered normal orbit in Jan, 1995. It was confirmed that the satellite debris had dropped in Ghana, Africa. Proton, Russian launch vehicle failed and the debris of launch vehicle and satellite dropped in Kazakhstan in July, 1999. All these cases fall into the category of the third party insurance.

According to Amendment to Launch Act of Japanese Space Agency(NASDA), NASDA shall enforce the third party insurance of liability for compensation while launching.^⑥ According to the same law, NASDA also bear the third party insurance while offering commercial launching. Ukraine Ordinance on Space Activity stipulates that the list of types of compulsory insurance to be taken out in connection with the pursuit of space activity shall be established by the Ukrainian legislation currently in force. Procedures for compulsory insurance shall be established by the Cabinet of Ministers of Ukraine.^⑥

Space is no longer the domain of state-owned enterprises monopoly. It is imperative to establish compulsory third party liability insurance. A practicable way is to set up a provision in Act on compulsory insurance or to make compulsory insurance as a prerequisite for acquiring space activity license.

Improving and perfecting commercial insurance pattern of space activity

Chinese space insurance and compensation system develop gradually from nothing. During the early days, Chinese government provided solid back up to those space enterprises engaged in international commercial launching services. Started with liability for probable damage outside territory caused by commercial launching service is liable to Chinese government directly, later on, it switched to the mode that commercial underwriters provide insurance.

Growing commercial space activity on both international and domestic market demand Chinese government to set up strong guarantee frame as soon as possible and to make subject of liability, object of liability, third party of liability in space accident and the principle of compensation definitely, and to provide just and reasonable methods for compensation to coordinate and guarantee the right and duty of participant.

Common commercial space insurance are as follows. Some insurance businesses haven't been in operation yet in China.

Pre-launching insurance

Pre-launching insurance provides insurance protection for damage caused by accident due to fire, explosion, destroy etc. before manufacture, test and transportation as well as preparation period before launching. Period of responsibility usually begins from the manufacture of spacecraft and launch vehicle, ends with ignition or lift-off of launch vehicle.

Pre-launching insurance item includes manufacture fee, transportation supply fee and other additional expenses. The typical accident includes: water immersion accident caused by roof leaking of satellite manufactory, satellite damage accident caused by fire and so on.

Launching insurance

Launching insurance, beginning from ignition or lift-off of launch vehicle, ending with entering the intended orbit, is the main part of space insurance. It embodies the main feature: high-tech, high-risk and high-value of space insurance and includes flight segment, the launch vehicle and the satellite separation, orbit transfer, excursion maneuver, antenna and solar panel deployment and on-orbit test and other stage.

The typical breakdown is that satellite fails to enter the intended orbit by the second stage due to launch vehicle explosion, engine premature ignition or lag burning and cause launching failure and other gross damage. Launching insurance covers all losses mentioned above.

In addition to total loss caused by satellite breakdown and loss, it also includes loss due to compatibility

between launch vehicle and satellite which causing satellite can not achieve desired technical performance. For instance, all shall be paid for indemnity due to satellite performance degradation caused by abnormality of transponder, electrical power and attitude control system, or due to shortening of satellite life caused by insufficient fuel and power descent.

Life insurance

It also called on-orbit insurance, which provides insurance protection when satellite cannot carry out scheduled work demanded and service life demanded caused by satellite abnormality after satellite entering intended orbit and starting normal operation. Typical cases include transponder failure, storage battery failure, solar array power descent and fuel leakage etc.

Life insurance normally counts manufacture fee, transportation fee and launching fee as insured objects. Applicant must present the report on satellite performance to the insurance company. The insurer will estimate the insurance condition and premium rate according to normal satellite work status provided by applicant's report.

Usually every satellite shall insure life insurance, however such as low and medium earth orbit communication system consisting of several satellites, including backup satellite on orbit, it can plan a blanket insurance.

Enacting national criterion and regulation on space debris mitigation

Of course, the most important thing is

still to put prevention first from technology perfection, in order to minimize the occurrence of accident, especially shall enact national criterion and regulation on space debris mitigation.

The proposed Chinese space debris monitoring and research program to minimize space debris was approved by the space specialists with the Commission of Science, Technology and Industry for National Defense. This is the first time that Chinese government organizes and plans a comprehensive national action plan on space debris research and monitoring to fulfill its international obligation in this area.

The proposed plan is to increase China's capability to observe, avoid and reduce space debris. China hopes that by 2005 the action plan not only gives its space program an independent ability to monitor orbital debris and issue warnings to protect space assets, but also offers technical support to the international exchange.

The action plan also determines the special goals in the related fields:

- establishing an initial observing capability through a dedicated fixed telescope and two mobile telescopes, with a capability of observing 30 cm objects in the geostationary orbit;
- developing a database on space debris environment and dynamics;
- developing and putting into service an international level risk assessment and emergency avoidance expert system;
- obtaining experimental data on active and passive protection through modeled experiments and computer simulations on materials and their structures, and

fundamental theoretical research;

- mitigating space debris generation, particularly in resolving the issues of venting residual propellant in the launcher's upper stage and passivation of satellites at the end of their missions which includes meeting the requirements to exit the operational orbits.

① See Qizhi He & Huikang Huang
Law of the outer space (Chinese) p.176

② Ibid p.89, p.271

③ See Bo Lu "Current situation of world space insurance" (Chinese)

④ See Song Li "Space insurance" (Chinese)