

Definition Issues Regarding Legal Instruments On the Prevention of the Weaponization of Outer Space

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During the discussions relating to legal instruments on the prevention of the weaponization of outer space, opinions are largely divided on the issue of whether to set definition provisions and how to set such provisions. This is not only because the definition issue is a complicated technical question, but also because it might reflect divergent political, military, security and diplomatic concerns of various sides.

I. Is a Definition Provision Necessary

Two divergent views exist on whether future outer space legal instruments should have definition provisions. One view supports making definitions, suggesting that a lack of explicit definition of such technical terms as "outer space", "space weapon", "space object" and "peaceful use", will inevitably lead to a different understanding of principal concept of outer space legal instruments. This may bring about legal divergences, and even leave room for intentional evasion of legal obligations.

The other view suggests that there is no need for definitions, on the ground that formulating them is both very difficult and unnecessary, due to wide differences among various sides, to reach consensus on definition of many technical terms. Lengthy discussions on the definition issue might impede reaching a political consensus on the prevention of the weaponization of and an arms race in outer space. Those who share this view cite examples of the Outer Space Treaty and the Moon Agreement to argue that a treaty without provisions on definitions may not lead to legal disputes.

II. Definitions of Major Technical Terms

To date, main views and positions on some major technical terms which may relate to outer space legal instruments appear as follows:

1. **Outer Space:** The issue of defining outer space is a question of demarcating the boundary between outer space and the atmosphere.

Since 1959, the issue of defining outer space remains a topic for deliberation in the United Nations Committee on the Peaceful Uses of Outer Space (UNCPUOS), its Legal Subcommittee and Science and Technology Subcommittee. However, no conclusion has been reached yet.

One view suggests that an explicitly delimited boundary of outer space is essential to the prevention of an arms race in outer space because many weapons and military activities are, in accordance with existing treaties and norms, allowed in the atmosphere but prohibited in outer space.

Another view suggests that, at present, trying to draw an artificial line between the atmosphere and outer space will not only end up in vain, but also cause more legal problems, since the international community has not yet reached a consensus on delimiting the boundary of outer space. Moreover, a demarcation will involve many different political, military, diplomatic and other concerns, which makes it difficult to reach an agreement.

Even those who stand for defining "outer space" have different opinions among themselves on how to delimit the atmosphere and outer space. One view suggests that outer space begins at an altitude unaccessible for aircrafts with aerodynamic principles of sustaining the flight, i.e. 30-40 km above sea level. Another view suggests that it begins at 100 km or 110 km above sea level, on the ground that as the atmospheric pressure at an altitude above that level is only one ten-millionth of that at sea level, an object can move there free of atmospheric friction and, in accordance with the celestial mechanics law, can fly along the orbit around the Earth for a full round as long as its velocity reaches 7.9 km per second. Moreover, an altitude of 100 km is much closer to the lowest adapted orbit (120 km) of a satellite.

2. Space Weapon: No consensus has been reached so far on the definition of "space weapon". One reason for this is that as "outer space" remains to be defined, it is impossible to define space weapons. Another reason is that differences still exist on whether defining space weapons should be based on their deployment positions or on their target positions. One view suggests that space weapons are weapons deployed in outer space regardless of their target positions. Another view suggests that in addition to the above-defined ones, any weapons targeting outer space objects regardless of their deployment positions should be considered as space weapons. All this shows that the major difference between the two views is whether to take weapons deployed in areas other than outer space which target outer space objects as space weapons.

Some experts have defined as space weapons any devices, installations or establishments based in outer space, including the Moon and other celestial bodies, which strike and damage objects in outer space, in the atmosphere, on the ground, in the sea or disrupt their normal functions, as well as any devices or installations based on the ground, in the sea or in the atmosphere, that strike and damage space objects, impair their normal functions or change their orbits.

3. **Space Object:** Differences relating to this technical term center on two points. First, "outer space" is yet to be defined. Secondly, whether an "object" means only man-made objects or any kind of object including man-made ones.

4. **Peaceful Use of Outer Space:** The militarization of outer space has to some extent become a reality due to the wide use of military satellites since humankind launched the first man-made satellite in 1957. Currently, 70% of all satellites are used for military purposes, while part of the rest can serve both military and civil purposes. Commercial satellites may also be used for military purposes. However, in various multilateral treaties and agreements, no explicit definition of "peaceful use" of outer space has been given yet, though it is a frequently used term.

One view suggests that "peaceful use" means "non-military use". In other words, any activities that serve military purposes should not be considered "peaceful use", no matter whether they are directly involved in military operations.

Another view suggests that "peaceful use" should include "non-invasive use" or "non-aggressive use". Such non-armed activities as satellite reconnaissance (including surveillance on the implementation of arms control and disarmament treaties and agreements), communication, navigation and nuclear explosion surveillance, which are not meant for direct military use, should also be regarded as "peaceful use".

III. Possible Alternative

Having appropriate definitions, if agreed upon by consensus of all Parties concerned, will undoubtedly play a positive role in discussion and adoption at the Conference on Disarmament of a legal instrument on prevention of placement of weapons in outer space. Given the differences in opinions on the definition issue, currently there may be two feasible alternatives.

1. Option one: to follow the pattern of the Outer Space Treaty and the Moon Agreement, setting no "definition" provisions in

future outer space legal instrument on the issue of prevention of placement of weapons in outer space.

2. Option two: based on the necessity and feasibility, to define some basic terms that are crucial to the future legal instruments of the Conference on Disarmament in this field.

IV. Tentative Thinking on Some Definitions

The above-mentioned second option is hereby explored. On a preliminary basis, tentative thoughts on some definitions for the purposes of this non-paper are shown below, by no means exhaustive or definite. These thoughts are only food for further consideration and discussion and will evolve along with future negotiation process.

Outer Space

Space beyond the elevation of approximately 100 kilometers above sea level of the Earth.

Outer Space Object

Any man-made device being launched into the orbit around any celestial body, or being in the orbit around any celestial body or on any celestial body except the Earth, or leaving the orbit around any celestial body towards this celestial body, or moving from any celestial body towards the other celestial body, or placed in the outer space by any other means.

Weapon (in outer space)

Any device, based on any physical principle, specially produced or converted to eliminate, damage or disrupt normal function of objects in outer space, on the Earth surface or in its air, as well as to eliminate population, components of biosphere critical to human existence or inflict damage to them (except those devices needed by cosmonauts for self-defense.)

Military Hostilities in Outer Space and from Outer Space

Actions connected with the use of weapons in outer space or from outer space.

Use of Force against Space Objects; Threat of Use of Force against Space Objects

These terms are used in the same sense as in a number of existing international documents.

Locations of Launches (of Outer Space Objects)

Geographical location (area in the territory of a state) of a space object launcher.

Space Launching Pad

A device designed for launching preparation, launching and space object launching steering.

Information on Objects Launched in Outer Space

Information on objects launched in outer space is specified by 1975 Convention on Registration.

(To be indicated: name of state which launched a space object including address of the body which can be contacted to obtain additional information or assistance in case of an accident; designation of the space object or its registration number; date, territory or place of launch, main parameters of an orbit including period of rotation, inclination, apogee and perigee, general purpose of the space object).

Launching Activities

Integral part of outer space activities related to the launching of space objects.