

SHARING BENEFITS OF THE GLOBAL NAVIGATION SATELLITE SYSTEM WITHIN THE FRAMEWORK OF ICAO

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Abstract

The development of the Global Navigation Satellite System (GNSS) may bring a profound change to air navigation and greatly promote the safety and efficiency of civil aviation. The international law-making process must keep up with the development of space technology. A legal framework, preferably within the auspices of the International Civil Aviation Organization (ICAO), is necessary in order to assure universal accessibility, reliability and continuity of the GNSS services. At present, as a transitional arrangement, the regulatory framework of GNSS is largely based on the non-binding policy and guidelines of ICAO, as well as the exchange of letters between ICAO and the State or States which provide GNSS services. In the long run, the international community will have to decide how to implement a civil global navigation satellite system. On the basis of its constitutive instrument and its previous practice, ICAO is fully competent in planning, co-ordinating, facilitating and regulating GNSS services for civil aviation purposes.

1. Introduction

In the early 1980's, the international civil aviation community realized the increasing limitations of the current systems of air navigation and started to explore, through ICAO, the possibility of improvement. In 1987, the ICAO Future Air Navigation Systems Committee identified the use of satellite technology to provide communication, navigation, and surveillance (CNS) services as "the only viable solution" that will enable one to overcome the shortcomings of the present air navigation systems and fulfil the needs and requirements of the

foreseeable future¹. The satellite based system was subsequently designated as ICAO Communications, Navigation, Surveillance and Air Traffic Management (CNS/ATM) Systems.

CNS/ATM Systems consist mainly of a marriage of space technology and computers². The Global Navigation Satellite System (GNSS) is the key element of the system. GNSS is an electronic aid which may be used to determine in the course of aircraft flight the real-time position of the aircraft, the course and distance to the desired destination, and the deviation from the desired track. GNSS will render obsolete much of today's ground base navigation radio services and promote efficiency and safety in the sky. At present, there are two satellite navigation systems: the Global Positioning System (GPS), developed by the United States, and the Global Orbiting Satellite Navigation System (GLONASS), developed by the Russian Federation³.

GNSS is one form of the use of outer space. The United States and the Russian Federation have respectively offered their systems for the use by the international community free of direct charge for a period of 10 years in the case of GPS and 15 years in the case of GLONASS. This initiative has enabled all countries, particularly those without space capabilities, to enjoy the benefit of space technology. In this sense, it has given effect to the principle enshrined in Article 1, paragraph 1 of the Outer Space Treaty that the exploration and use of outer space shall be carried out for the benefit and in the interest of all countries.

2. Legal Issues

At operational level, however, many issues remain to be resolved in order to provide a legal guarantee that GNSS may be used as primary means of air navigation. Under international law, the sovereign rights of a State include the right to regulate and control the provision, operation and

* The view expressed here is that of the author and should not be attributed to ICAO.

management of air navigation services within its territory. In the case of GNSS, the navigation facilities for most States, at least as far as the space segments are concerned, would be controlled and operated by one or more foreign countries, representing a dramatic step away from past practice in the application of the principle of sovereignty. Naturally, this situation gives rise to certain concerns, particularly in view of the fact that the GNSS services currently available for the international aviation community have originated from systems designed and operated for military purposes. A related concern is that when GNSS becomes the sole air navigation system and the traditional ground facilities are dismantled, the discontinuation of GNSS services, if decided unilaterally by a provider State, could mean the shutting down of the entire air transport system using such GNSS services. To address these issues, it is necessary to set up a legal framework.

3. Transitional Arrangements

To keep up with the development of GNSS, one of the important steps taken by the ICAO Council is the adoption on 9 March 1994 of the Statement of ICAO Policy on CNS/ATM Systems Implementation and Operation⁴. The Statement declares that the principle of universal accessibility without discrimination shall govern the provision of all air navigation services provided by way of CNS/ATM Systems. The Statement also reiterates that implementation and operation of CNS/ATM Systems which States have undertaken to provide in accordance with Article 28 of the *Convention on International Civil Aviation* (the Chicago Convention) shall neither infringe nor impose restrictions upon States' sovereignty, authority or responsibility in the control of air navigation and the promulgation and enforcement of safety regulations⁵. Furthermore, the Statement affirms that continuous availability of service from the CNS/ATM Systems shall be assured. Thus ICAO has provided certain policy safeguards for State sovereignty, as well as universal accessibility to, and continuity of, GNSS services.

However, the Statement of ICAO Policy is not a binding instrument, although it may carry strong political weight and high persuasive value. To provide a more definitive assurance, ICAO has made transitional arrangements by exchanging letters respectively with the United States and the Russian Federation. The exchange of letters with the

United States on 14 October and 27 October 1994 states that the United States intends, subject to the availability of funds as required by United States law, to make the Standard Positioning Service of GPS available for the foreseeable future, on a continuous, worldwide basis and free of direct user fees⁶. Similarly, the exchange of letters with the Russian Federation on 4 June and 29 July 1996 also confirms that the Government of the Russian Federation offered the world aviation community the provision of the standard-accuracy GLONASS channel "on a non-discriminatory basis for a period of at least 15 years with no direct charges collected from users, subject to the allocation of resources, as required under the legislation of the Russian Federation"⁷. The United States and the Russian Federation have also respectively declared that the availability of their systems is not intended in anyway to limit the right of any State to control aircraft operations and enforce flight safety regulations in its sovereign airspace⁸. Further, they have respectively committed to take all necessary measures to maintain the integrity and reliability of the services and each of them expects that it will be able to provide at least six years notice prior to termination of its services⁹.

It should be noted that the exchange of letters with the Russian Federation "will constitute a mutual agreement" whereas the exchange of letters with the United States will comprise mutual understanding "in lieu of an agreement"¹⁰. In this respect, a writer from the United States has made the following comments:

"By using letters in lieu of a formal agreement, the FAA and the Administration may be walking a fine line between demonstrating a firm commitment by the United States and executing a formal executive agreement that might have domestic political consequences".¹¹

Furthermore, the offers by the United States and the Russian Federation for the provision of GNSS services respectively contain the proviso of "subject to the availability of funds as required by United States law" or "subject to the allocation of resources, as required under the legislation of the Russian Federation". The applicability of this proviso may be subject to a future interpretation.

Nevertheless, the exchange of letters represent a significant step in the establishment of a legal framework with regard to GNSS. They contain

legal commitments concerning universal accessibility to, and continuity of GNSS services. They strike a balance between the realization of early benefit from GNSS and necessary protection of the users' interest. They do not, and in my view, cannot replace the consideration of the long-term legal framework for GNSS, which is currently the mandate of the Panel of experts established by the ICAO Council on 6 December 1995.

4. The Long-term Legal Framework for GNSS

It is the ICAO's established policy that GNSS should be implemented as an evolutionary progression from existing global navigation satellite systems, including the United States' GPS and the Russian Federation's GLONASS, toward an integrated GNSS over which Contracting States exercise a sufficient level of control on aspects related to its use by civil aviation¹². Accordingly, the consideration of the long-term legal framework should address the issue of control. The establishment of a new international organization for GNSS, which may be similar to INMARSAT, may resolve the issue of control. However, this will depend upon whether the international community has sufficient political will and financial means to do so. The past experience has also indicated that it is both difficult and time-consuming to conclude a new multilateral convention that will form the constitutional instrument of an organization. In view of this, it is the policy of ICAO that the CNS/ATM Systems shall, as far as practicable, make optimum use of existing organizational structure, modified if necessary¹³. It is submitted that within the framework of the Chicago Convention, a number of options, which are not mutually exclusive, exist for achieving different degrees of international control.

Article 15 of the Chicago Convention provides that upon representation by an interested Contracting State, the charges imposed for the use of airports and other facilities shall be reviewed by the Council, which shall report and make recommendations thereon for the consideration of the State or States concerned. The term "other facilities" may of course include the elements of GNSS¹⁴. Therefore, with respect to the user charges related to GNSS, there is a reviewing mechanism in place, which may be used by Contracting States.

If the Contracting States so wish, ICAO's responsibility may be extended beyond the power of

review and recommendation. Under Article 84 of the Chicago Convention, any disagreement relating to the interpretation or application of provisions of the Annexes that are applicable to GNSS may be decided by the Council if any State concerned so requests. Further, ICAO Assembly Resolution A1-23, which is still in force, authorizes the Council to act as an arbitral body on any differences arising among Contracting States relating to international civil aviation matters submitted to it, when expressly requested to do so by all parties to such differences. Therefore, it is possible for Contracting States to give jurisdiction to the ICAO Council for settlement of disputes related to GNSS. In this way, certain judicial or quasi-judicial control of GNSS activities related to aviation may be achieved.

Chapter XV of the Chicago Convention makes it possible for ICAO to be more dynamically involved in administrative aspects of GNSS services. Article 71 states that if a Contracting State so requests, the Council may agree to provide, man, maintain, and administer any or all of the airports and other air navigation facilities including radio and meteorological services, required in its territory for the safe, regular, efficient and economical operation of the international air services of the other Contracting States, and may specify just and reasonable charges for the use of the facilities provided. In this connection, reference should be made to the joint financing arrangements used for Iceland and Greenland. While the air navigation facilities are jointly financed by the Contracting Parties to the Joint Financing Agreements, and operated by Denmark and Iceland, the Secretary General of ICAO is responsible for generally supervising the operation of the services; a section in the Secretariat carries out the day-to-day administrative functions involved. It estimates actual costs, evaluates requests for new capital expenditures or resources, prepares the assessment levels for Contracting Parties, determines the level of user charges and arranges for the handling of funds and payments to the provider States¹⁵. It has been suggested that the same or similar arrangements could be applicable to GNSS, wherein the ICAO Council may assume the function of administrative control over the facilities related to GNSS.

In summary, international control of GNSS within the ICAO system may range from non-binding review to active administration. It depends upon the Contracting States to decide which option is acceptable.

5. Concluding Remarks

GNSS presents both opportunities and challenges. It provides benefits to all mankind, but such benefits can only be continuously ensured within an appropriate long-term legal framework that provides for certain degree of international control. In this respect, ICAO may, within its constitutional mandates, develop and implement a legal framework for GNSS services and give effect to the principle of shared benefits among Contracting States.

References

1. ICAO Doc. FANS(II)/4-WP/9, para. 1.2.1
2. Address by the President of the Council of ICAO, Dr. Assad Kotaite, to the "Sociedade Brasileira de Direito Aeroespacial" on ICAO's Role with respect to the Institutional Arrangements and Legal Framework of Global Navigation Satellite System (GNSS) Planning and Implementation (21 May 1996, unpublished).
3. ICAO Doc. LC/29-WP/3-3, paras. 4-1 - 4-3
4. ICAO Doc. LC/29-WP/3-2
5. *Ibid.*, paragraphs 1 and 2
6. ICAO Doc. C-WP/10396, Attachment 1 to State Letter LE 4/49.1 - 94/89
7. ICAO Doc. PRES AK/522, Attachment
8. See *supra* notes 6 and 7.
9. *Ibid.*
10. *Ibid.*
11. Epstein, J.M., "Global Positioning System (GPS): Defining the Legal Issues of its Expanding Civil Use", 61 *JALC* 243, at 274-275
12. See *supra* note 4, paragraph 6.
13. *Ibid.*, paragraph 5
14. See *supra* note 2, at 7.
15. ICAO Doc. A31-WP/15, para. 2.4