EUROPEAN UNDERSTANDINGS IN THE APPLICATION SATELLITES FIELD AND THEIR LEGAL IMPLICATIONS+

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I. BACKGROUND

The importance of Europe's role in the promotion of space application satellites and space technology has increased considerably during the past five years. In stating this, it should be recognized that there still exists a great numeric difference between developments which have taken place in this respect in the United States and those which have occurred in Europe, at least as far as application satellites are concerned. Nevertheless, one should realize that space applications have developed in an immense form in Europe during this period, and that industry has begun to appreciate the commercial interest this field holds for it. Several study programs have been started and executed in European countries, in industry as well as in national institutions; for instance in the fields of telecommunications, air navigations control, meteorology and remote sensing of the earth. The European Space Research Organization (ESRO) has played an important role in this respect, as it has furthered research and study work in the field of space technology by placing contracts in industry with Member States for several years; it has thus contributed a considerable amount of knowledge and knowhow.

Europe possesses the necessary capacity to enter into bigger application projects. It is worthwhile to recall the political milestones which have marked the attempt to achieve this goal. After a first attempt in 1966-67 to prepare, based on a study made by ESRO, a regional experimental telecommunications satellite for Europe—the so-called CETS-C satellite[1]—national and bilateral projects were established, such as the French/German "Symphonie" telecommunications satellite and the Italian "Sirio" telecommunications satellite projects.

A further step forward was the reorientation given by its Member States to ESRO, which had already, during the first year of its existence, executed with success a number of scientific projects.[2] In December 1971, by decision of the ESRO Council, this Organization was authorized to enter into the field of large application satellites projects. It is quite clear that the principal aim of this decision must be seen against the background of the general consideration by the States that projects of this size should be

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+This article contains only the personal views of its author.

[1]It should be noted that CETS, which stands for "Conférence Européenne de Telecommunications par Satellites", was a conference of European States whose task was to prepare the INTELSAT negotiations and a European satellite telecommunications program. Its Secretariat was located in London until 1968, and was then transferred to the Secretariat of the European Space Conference.

[2]Between the date of creation of the European Space Research Organization and the present date, seven scientific satellites have been launched by this Organization, among which should be noted such advanced satellites, as the HEOS and the TD satellites.

executed in a wider international framework, taking into account both economic and efficiency aspects. The principal items of this decision, as made in December 1971, can be summarized as follows:

(a) ESRO will in the future undertake application satellite programs, in particular an Aeronautical Satellite Programme (AEROSAT), a Meteorological Satellite Programme (METEOSAT) and a Communications Satellite Programme that will comply with the requirements of the European Conference of Posts and Telecommunications Administrations (CEPT) and the European Broadcasting Union (EBU).

(b) The Member States participating in one or more of the above application satellite programs agreed, as an expression of the importance they attach to the application satellite programs within the framework of the Organization, that, during the period 1974-1980, an annual level of resources of not less than 70 MAU[3] (at mid-1971 prices) should be assumed for planning purposes.

(c) The Organization will pursue a scientific satellite program in which all Member States will participate and for which the annual level of resources for the period 1972-1974 shall be not less than 27 MAU (at mid-1971 prices), and the annual level of resources for the three years 1975-1977 has, for planning purposes, also been fixed at 27 MAU.

The Organization has furthermore been charged with a new coordinating and concerting role with respect to all space programs for peaceful purposes originating with the Organization and national agencies. For this purpose, the Organization shall collect all relevant information and disseminate it to the Member States, draw attention to gaps and to duplications and provide advice and assistance for the harmonization of both international and national programs; it shall also maintain regular contact with the users of space techniques and keep itself informed of their requirements.

The first consequence of the application of the principle of international cooperation in this field was the decision by the French Government to propose to ESRO Member States the internationalization of its METEOSAT project. In fact, after negotiations between this Government and ESRO the project became an international application satellite project. Its objective is the design, development, construction, placing in orbit, management and control of a pre-operational meteorological satellite (METEOSAT) and development and installation of associated ground facilities, with the aim of improving, in connection with the development of meteorology under the World Weather Watch program and the Global Atmospheric Research Programme (GARP), the services provided by the meteorological agencies.

A further application satellite program was agreed upon by European States, members of ESRO, namely the execution in cooperation with the United States, of an Aeronautical Satellite Program (AEROSAT). The objective of this program is the design,

[3]MAU refers to million units of account. A unit corresponds in value to U. S. $1.00. 1 Europa Year Book 1973, 259 (1973).

development, setting up and operation of a pre-operational system for air traffic control by means of satellites, with a view to improving air traffic services, in particular air-ground communications, over several areas of the globe.

In the field of telecommunications, different elements of a technical, legal and political nature delayed a decision on a satellite project, the definition phase of which has, nevertheless, already been started. It is hoped that this program, namely a regional European satellite project, will be agreed upon very soon. This program has, as its main objective, the design, development, construction and setting up of a space communications system, which would be put at the disposal of national postal and telecommunications administrations, and which would be capable of handling part of the intra-European public telecommunications traffic and the exchange of television programs.

Work is also in progress in the field of earth resources surveys. Several institutions in ESRO Member States are actively pursuing studies and ESRO itself has grouped together national experts to examine the results of these studies and to establish proposals for an earth resources survey program to be executed in the future.

Finally, European States grouped in ESRO are not neglecting the important role that maritime satellites may play in the near future. ESRO follows with interest the development in this field, in particular by means of close cooperation with the Intergovernmental Maritime Consultative Organization (IMCO). ESRO has established a special working group composed of national experts, who shall elaborate particular proposals for a project.

These are, described in a summarized manner, the present main undertakings in Europe in the application satellites field. It seems appropriate to turn now to the particular legal and administrative problems which arose from their preparation and execution, or which may arise later on during their performance.

II. LEGAL AND ADMINISTRATIVE PROBLEMS IN A REGIONAL SYSTEM

It should be pointed out that the satellite projects mentioned are to be considered as "regional" projects, *i.e.* they primarily serve the needs of a region like Europe, but they will execute the same functions as a global international satellite, such as INTELSAT. It seems that one can recognize a general tendency, certainly in the telecommunications field, to provide in the long run for only a few but very big satellites for global purposes, and also to provide for regional purposes particular satellites based on a highly developed terrestrial network containing ground stations with a minimum of maintenance requirements, and using frequencies of optimal use conditions. The political interest in regional satellites coupled with the fact that they offer to serve the particular requirements of a region like Europe lead to the conclusion that regional satellite systems will, in many areas, play an important role in the future.

The legal and administrative problems arising under such regional satellite systems are for many of them the same as for those which serve a global, world-wide purpose. For instance, to start with a typical case, the considerations and deliberations, undertaken at different places and in national and international committees, on the implications of remote sensing of the earth by satellite are applicable to global as well as to regional earth satellite systems. It is well-known that international law does not set up limitations in principle with regard to remote sensing on the earth by satellites; on the contrary, the Outer Space Treaty[4] encourages countries to undertake activities such as earth resources surveying and it states that there shall be freedom of scientific investigation in outer space, and that States shall facilitate and encourage international cooperation in the investigation of space. But Article IX of the Treaty on Outer Space also stipulates that these activities shall be executed with due respect to the corresponding interest of all other States parties to the Treaty and, in general, in accordance with international law and the United Nations Charter (Article III). The application of such principles requires the setting up of a legal regime for the study of national environment from outer space, which must include the protection of national sovereignty and security, the right of peoples to use freely and exploit their national resources, and the prohibition of acts designed to impede the exercise of the sovereignty of any State over its national resources.

It can be foreseen that for the purpose of a regional earth survey system the participating States conclude among themselves an international agreement providing for the right to exchange freely among themselves any relevant data and information arising from the investigations made by the satellite system concerned. Examples in this respect exist already.[5] However, the rapid development of technologies—and the results of certain programs such as the Earth Resources Technology Satellite (ERTS) programs clearly indicated this—may lead to a conflicting situation when information is obtained from the territory of a neighboring country which does not belong to the participants in the particular regional satellite program. In such a case, the international regime to be established would have to be made applicable. This is a typical example for a case of "intervention" by a general international rule into a regional satellite system.

Another area which international rules may have to regulate is the management of orbit positions. It seems that certain remote sensing systems require specific orbits in near-earth space for optimum performance and that this region of outer space can accommodate simultaneously a great number of spacecraft. However, as far as geostationary satellite orbit is concerned, it appears, according to studies made by the International Radio Consultative Committee (CCIR) which were approved during the last

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[4]Treaty on Principles Governing Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967 [Oct. 10, 1967], 18 U.S.T. 2410, T.I.A.S. No. 6347.

[5]See the Agreement of Rio de Janerio of January 18, and September 10, 1968, 19 U.S.T. 6060, T.I.A.S. 6569 and the Agreement of Tlatelolco of December 20, 1968, 19 U.S.T. 7809, T.I.A.S. 6613; and table of ERTS cooperative programs in International Cooperation in Outer Space: A Symposium, ed. by Elene Galloway, 92nd Cong., 1st Sess. Sen. Doc. 92-57, Washington 1971, p. 47.

Plenary Assembly of the International Telecommunications Union (ITU) held in New Delhi in 1970, that absolute limits of capacity of the geostationary orbit exist. Therefore, international regulations for the placing in geostationary orbit of earth resources satellites or their relocation will have to be established which must also be respected by the group of countries which has established the particular regional satellite system.

Developments in the telecommunications field also highlight the legal implications arising from the establishment of a regional telecommunication satellite system for Europe. In this respect a reference should be made to the INTELSAT Agreement and to the implementation of its Article XIV,c.[6] It might be recalled that, according to this provision, the parties to the Agreement can establish, acquire or utilize satellite space segment facilities distinct from the INTELSAT network. However, prior to this, the parties are obliged to submit all relevant information to the Assembly of Parties and shall consult it through the intermediary of the Board of Governors, in order to assure technical compatibility of the planned facilities with the INTELSAT space segment, and to avoid significant economic harm to the global INTELSAT system. The Assembly would then adopt the recommendation by a two-thirds majority with regard to the regional system envisaged.

It might be noted *inter alia* that the question of whether the above recommendation shall be made with a positive or a negative majority was discussed for a long time in Europe and has still not yet been settled. This procedure shows clearly the strong interface between international regulations and regional undertakings in this field. The European telecommunications program will, at least for its operational phase, be faced with this procedure at an appropriate moment. The ruling of the INTELSAT Assembly may have further consequences in that the United States Government may make dependent upon it its decision to supply US launchers for the orbiting of the satellites to be developed under the program. Indeed, the United States has always made it clear that a decision to provide such launchers will have to be made by the US Government by respecting its "international obligations", *i.e.* the commitments undertaken under the INTELSAT Agreement.

The European METEOSAT program referred to above also constitutes a good example of the interface between international rulings and regional undertakings by Europe. This program, however, will probably lead to problems of another category than those reported above. As already indicated, it forms part of a world-wide program (GARP) and it requires a considerable amount of coordination work which must be undertaken on the European side as well as by the other partners in the GARP system, *i.e.* the United States, Japan and possibly the USSR. This coordination work refers mainly to questions of coordination and compatibility between the different geostationary meteorological satellites. ESRO has proposed that the World Meteorological Organization (WMO) should play a significant role in this coordination work, and with this in mind, has concluded an agreement with WMO which provides, inter alia, for

[6]Agreement Relating to the International Telecommunications Satellite Organization INTELSAT, Aug. 20, 1971, T.I.A.S. No. 7532.

effective coordination of activities and procedures arising from such meteorological satellite programs, with a view to ensuring optimum benefits for meteorological operations and research.

Finally, the third European applications program, AEROSAT, which Europe hoped to start as the first of its important undertakings in the applications field, again shows clearly the strong connection between the international legal and administrative situation and such a regional program. It should be recalled, without going into any detail, that this program was planned, from the beginning, to be executed together with the United States and other partners, such as Australia, Canada and Japan. It was composed initially of an Integrated Program referring to the establishment of an aeronautical satellite segment over the Atlantic and Pacific Oceans, and the so-called Coordinated Program, including the establishment of ground facilities, the development and evaluation of necessary aircraft avionics and the establishment of a coordinated demonstration program by using the aeronautical space segment capability.

The legal framework in which the execution of this program was planned was established by a Memorandum of Understanding between ESRO as signatory on behalf of the participating European States, and by the United States Federal Aviation Administration (FAA) as signatory on behalf of the United States Government. It was envisaged that both agencies would be the main financial contributors to the Integrated Program. The sudden change in United States policy with regard to this program, consisting essentially of the desire to avoid the FAA becoming the owner of the space segment, led to the unfortunate situation whereby ESRO had already achieved the authority to sign this Memorandum at the beginning of 1972, whereas the FAA could not obtain this authority from the United States Government. It took a certain time to re-install confidence on the European side, and it was only in November 1972, after a decision by the ESRO Council to execute this satellite program alone or in cooperation with other partners, that the United States Government made a new proposal for re-opening negotiations on the basis of a new concept. This new concept foresees that the aeronautical space segment capability will be separately established under contractual arrangements whereby ESRO, Canada and a United States company become co-owners of this capability for at least the duration of the Memorandum of Understanding. The FAA, ESRO and Canada as signatories shall obtain the use of this capability with the FAA and ESRO obtaining equal portions. The FAA portion will be separately obtained by lease from the United States company.

Furthermore, the question of coverage of the Pacific Ocean will be the subject of a later decision; the space segment will be established initially over the Atlantic Ocean only. An AEROSAT Council, composed of representatives of the FAA, ESRO and Canada, will be established and will be the chief body responsible to the signatories for the execution of the program and will represent the whole range of operational and technical interests of the signatories. It is foreseen that other countries may join the Coordinated Program, the principal aims of which are still maintained. Therefore, it is hoped that Australia and Japan will also join this part of the program, and this will be an indication of the interest which the results of the evaluations may have later on for the Pacific region.

III. REVIEW OF THE ESRO CONVENTION

The above considerations refer mainly to the political and legal situation of the planned regional applications system, seen in the world-wide context in which they are placed. But there are further important questions which had to be solved or which are still under study inside Europe. One of the most important questions concerned the overall structure under which these programs were to be executed. It was clear from the beginning that the European Space Research Organization should serve as the focal point in this respect and that it should receive the mandate for reassembling all relevant ideas and information, and be the executive body for such programs on behalf of the participating States. But in order to ensure this, it was necessary to establish the relevant legal basic concept and the appropriate structure. This was of particular importance because the actual text of the ESRO Convention stems from the idea of unity of program and membership. Indeed, the participation in ESRO was, under the present Convention, linked with the participation in all programs agreed to under it. It was therefore decided to review the ESRO Convention to take account of the reorientation of the program concepts with a view to allowing certain Member States, but not all, to participate in particular programs. The amendments proposed to the Convention of ESRO take into account this new concept and it is foreseen that Member States may declare themselves not interested in particular programs. A Protocol to be annexed to the ESRO Convention will state the detailed terms and conditions under which this new concept can be implemented.

Another important aspect which had to be examined in the same context was the role of Member States and their representatives with regard to the supervision of such activities. The Council of the Organization is composed of representatives of all Member States and it remains the supreme legal body of the Organization. Further rules had to be defined to allow representatives of Member States participating in a particular program to assume direct responsibility for such a program. It was therefore agreed to establish, as an *interim* measure and with a view to their institutionalization in the revised Convention, so-called Program Boards in which only representatives of countries participating in the particular program are allowed to vote on questions relating exclusively to that program.

Furthermore, the Organization had to find an *interim* solution in order to implement with immediate effect the above principles and concepts. As they can only enter into force formally after approval by all Member States of the amendments to the Convention as suggested, it was necessary to devise a system whereby immediate implementation would be possible. Therefore, for each of the application programs mentioned, an internal European Arrangement has been drawn up, under which the Member States participating in the particular application program establish among themselves and the Organization the relevant rules and conditions for participation in and execution of the program. The Council of the Organization has been invited in each case to accept that the Organization executes the program in accordance with Article VIII of the present text of

the Convention.[7] This *interim* solution permitted Europe to embark upon the most important application projects it had ever undertaken without awaiting the formal approval or ratification of the amendments to the ESRO Convention. In fact, the actual so-called special application projects will become, after this approval or ratification is obtained, the optional programs of ESRO. This example shows the legal flexibility which is sometimes required in order to set up an appropriate legal basis and framework for such important undertakings.

IV. EUROPEAN SPACE POLICY FOR THE FUTURE

A final word should be said with regard to the future European space policy and organizational structure as envisaged by the European Space Conference held in Brussels in December 1972. It was agreed that a new European Space Agency should be built up out of ESRO and ELDO (the European Launcher Development Organization), but it was also confirmed that the present undertakings subscribed to within ESRO should not be placed in danger by this, and that the principles and rules foreseen in the revised ESRO Convention shall also serve as a basis for the drawing up of the Convention of the new European Space Agency. It can therefore be expected that the general lines of conduct, in particular with regard to application programs in Europe, as well as the legal framework in which they will be planned and executed, will also be maintained in the future.

A particular aspect which remains to be studied is that of the future use of the satellite networks and their operational phases. At present, the AEROSAT, METEOSAT and Telecommunications programs are considered to provide for experimental and pre-operational data only; but the long term aim is of course to arrive at a certain moment, in the light of experience gained, at an operational use of these systems. In principle, ESRO has not envisaged operating satellites other than its scientific ones for non-experimental purposes, but it can nevertheless be called upon to operate application satellites if so requested by the future users and if this is accepted by its Member States. Nothing in the revised draft Convention of ESRO speaks against such a solution, but particular arrangements with the future user organizations will have to be established should such an activity be decided upon. The solution to this will probably be found within the framework of the future European Space Agency and therefore a final solution to this problem cannot yet be envisaged.

It is hoped that the above considerations will give the reader an overall impression of the particular legal and administrative problem that Europe has encountered in the field of application satellites.[8]

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[7] See "Basic Texts, Rules and Regulations, Agreements of the European Space Research Organization" (Doc. ESRO/SP-4, March 1969).

[8] It should be mentioned that this article does not take account of the many international legal implications that the new Spacelab program of the European Space Research Organization may have. This program, which is undertaken as the European participation in the U. S. program regarding space transportation and orbital system, will include many application aspects. Indeed, the laboratories to be established will be suitable for conducting research and application activities on shuttle sortie missions. Work is in progress in ESRO, in cooperation with NASA, to establish the appropriate legal international framework for the execution of this new and challenging program.