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CONSEQUENCES OF THE FRENCH SPACE LAW ON SPACE OPERATIONS (FSOA) ON CNES' MISSION AS A SPACE AGENCY

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ABSTRACT

This publication provides a presentation of the main consequences of the new French Space Operations Act (FSOA or SOA) adopted on June 3rd 2008 on CNES' missions as a space agency in its development programs and research activities. It focuses on potential conflicts of interests between CNES' new missions deriving from the SOA concerning the authorization and control of private operator's activities on behalf of the French Government and commitments CNES could have towards private companies by contracts, partnerships, technical assistance or support as a space agency or technical center. This issue of avoiding potential conflict of interest is not new nor specific to SOA advent, given the fact that CNES staff and investments, as in any other governmental agency, are mainly founded by Public Budget. This agency is then required to avoid any unfair competition while dealing with the private sector. However, the authority granted to CNES by FSOA towards private operator's activities has strengthened the issue of potential conflicts of interests.

Consequently, a wide survey has been made in 2009 by CNES over any of its businesses in relation with private operators potentially falling under the scope of FSOA, in order to assess any risk of conflicts of interests, and to propose remedies as the case may be, so as to be ready to exercise serenely its new responsibilities on December 10th, 2010, the date of FSOA's entry into force.

The following activities have been listed according to the said survey: access to CNES's testing facilities, quality assurance support for Arianeespace, satellite preparation facilities in Guiana Space Center (GSC), physics laboratory measures, participation in Arianeespace company Stock, on orbit satellite maneuvers for ATV, Galileo or on behalf of any private operators...

This appraisal has contributed to the identification of a set of "acceptance (or no acceptance) criteria" for such activities, mainly on the basis of the French Public Service Legal Doctrine or Case Law, in accordance with the European law.

Accordingly, this paper synthesizes solutions and remedies allowing to avoid any conflict of interest as to ensure legal compatibility among CNES' various missions as a fully competent Space Agency and as the

Government's technical expert for the implementation of the SOA.

REFERENCES

Legislation :

CNES Constitutive Act, December 19th 1961 n° 1961-1382, codified by Ordinance June 11th 2004 n° 2004-545, into the French Research Code (here after **RC**), Article L. 331-1 to L331-6, the whole being amended by article 21 and 28 of French Space Operations Act June 3rd 2008 adding article L 331-7 and 8, here after **CNES Constitutive Act**.

French Space Operations Act June 3rd 2008 - n°2008-518, **hereafter FSOA**.

Decree no. 2009-643 on the authorizations issued on 9th June 2009 in accordance with French Act no. 2008-518 of June 3rd 2008 relative to space operations, **hereafter 2009 Authorization Decree**.

Decree no. 2009-644 issued on June 9th 2009 amending decree no. 84-510 of June 28th 1984 relating to the Centre National d'Etudes Spatiales, **hereafter CNES Amended Decree**.

Preliminary works:

Ministry for Research and new technology in charge of Space affairs:

- Study report "Evolution of Space law in France", February 2003, MRNT, Technology Directorate Space and Aeronautics Department (synthesis available in English), www.recherche.gouv.fr

State Council (Conseil d'Etat):

- Appraisal Studies, April 6th 2006, " A Legal Policy for Space Activities" (pour une politique juridique des activités spatiales), edited by La Documentation Française, Paris 2006 .

Senate:

- Mr. Henri Revol's report, on behalf of the Economics Affairs Commission, January 15th 2008, n° 161 et n° 328 (2007-2008).

National Assembly (Assemblée nationale):

- Mr. Pierre Lasbordes's report, on behalf of the Economics Affairs Commission, April 2nd 2008, n° 775.

1- INTRODUCTION

France adopted a domestic legislation on Space operations on June 3rd 2009. This act will come into force on December 10th 2010,

In a few words, the general purpose of this French Space Operation Act (hereafter FSOA or SOA) is to set up a coherent national regime for authorization and control of space operations under the French jurisdiction and/or for which the French Government bears international liability either under UN Treaties principles (namely the 1967 Outer Space Treaty, the 1972 Liability Convention and the 1976 Registration Convention) or in accordance with its European commitments with ESA and its members states (for European launchers such as Ariane).

The governmental authority responsible for granting space operations' authorizations and controlling its implementation is the Ministry of Research, as Ministry in charge of Space affairs (FSOA art. 2 and 4.2 - Authorization Decree, art. 1).

The Centre National d'Etudes Spatiales (CNES) on its side has been granted by law with a full delegation as for the technical instruction of authorization applications (FSOA art. 28 g).

This paper focuses on effects of such legislations on CNES' missions, in particular risks of conflicts of interests between its traditional space agency missions, i.e. space program management (included those in relation with ESA¹) and technical center' activities, and its new delegated responsibilities and duties consisting in attesting and monitoring, on behalf of the French government, the compliance of private systems (and their operating procedures) with the FSOA's Technical Regulations' provisions being set forth for the safety of persons and property, the protection of public health and the environment.

One may consider that such role for CNES basically does not differ that much from those resulting from its former involvement in Ariane production monitoring or qualification maintenance since 1980 as "design authority" (*autorité de conception*), in particular on behalf of ESA in ARTA (Ariane Research and Technology Accompaniment).

The main difference is that now CNES' role under the SOA is to be limited to the assessment of space systems compliance with technical regulation provisions but not to propose any complementary technical support or remedies.

The issue discussed in this paper also includes CNES' missions at the Guiana Space Center (GSC), the European Launch Base for Ariane, Soyuz and Vega, where CNES' President has been entrusted by SOA with a special authority over the general safety, security and base management ("Administrative police" in French Law).

Here also, CNES' President FSOA's Police mission is not an *ex nio* creation, but a formal and belated translation into national legislation of previous French government's responsibilities, delegated to CNES, in the frame of an International Agreement with the European Space Agency dealing the GSC and its associated services signed on 1976 May 5th and constantly renewed to nowadays.

Under this Agreement :

- ESA recognized the French government has delegated to CNES its responsibilities concerning the general safety, security and base management at the GSC ;
- France and ESA set up the rules for the sharing of the burden of the liability for damages caused by launchers operated from CSG: ESA shall be liable for damages caused by its own launchers programs (i.e. Ariane 1 development, before its qualification flight, or nowadays VEGA maiden flight) or if its satellites is at the origin of the damages –France shall be liable for any other damage (in particular after 1980, for damages caused by Ariane launches during its Production/exploitation Phase).
- France and ESA decided to share the financial burden of the GCS launch base maintenance cost on a respective proportion of 1/3 – 2/3.

2 – FSOA'PRINCIPLES AND CONSEQUENCE ON CNES MISSIONS

2.1 – CNES' Statute and Missions before FSOA

The French space agency was created by Act of 1961 December 19th under Charles de Gaulle's Presidency in order to design and implement the French government's space policy. CNES' Founding Fathers, in particular Professor René Auger, were also those who supported, at the same time, around 1962, constitution of both European space organizations, ESRO and ELDO, precursors of the present ESA organization. The rationales were to provide France with an autonomous body to carry out national research and international and European cooperation and to develop a domestic space capacity in the field of science, industry and space applications.

C.N.E.S.' mission as a space agency, according to its constitutive act (RC article 331-2 a to e provisions, before FSOA' article 28 addition)² is very comprehensive, concerning:

- proposal, for government's final decision, of space development programs (in the fields of science, technology, innovative operational systems, satellites or launcher systems...), such programmes being achieved as the case may be on a national or European scale or in the frame of international cooperation;
- Management and implementation of such programs, as contracting authority, or through cooperation or partnership, or through its technical centres expertise (Toulouse Space Centre for orbital systems, science and space application, Launcher Directorate in Evry for launch systems);
- International space cooperation with other national space agencies;
- Publication, promotion, education and other actions encouraging the development of space activities and applications...

CNES has the legal personality (RC article L331-1), distinct from the one of the French State. That means CNES disposes, under general authorization of its board, of an independent budget, can sue or be sued by third parties in courts, is sole responsible and liable in connection with its actions. In other words CNES, as compared with NASA for example, is not a branch of the Government administration.

As another specificity resulting from its constitutive Law, CNES has been embodied as an "Industrial and Commercial State Organization" (EPIC), such status traditionally being reserved to operational monopolistic public utilities such as EDF (*Electricité de France*), the national electricity power supplier, or SNCF, the French railways state-owned company.

As a difference with such State operators, being mainly founded by a turn over generated by their public services provided to users, CNES financial resources are mainly provided by the National Research Budget (Finance Yearly Act, n°191 and 193, defence and civil items) and contracts or mandates from ministry or other public agencies, included ESA (at GSC for example).

However, CNES never developed any "commercial" permanent activity on its own, at least within the meaning of the French Commerce or Tax codes.

CNES' capacity to undertake commercial activities is limited to the necessary transition period before the transfer of the activities to the private sector (as a kind of incubation) or when occurs a default of a private offer or capacity. In any case, such potential

competitive activities (operations or downstream applications) were conceded through framework agreement to dedicated stock company, Arianspace SA for launch services³ or Spot Image for Spot data worldwide distribution.

The advantage of the EPIC status, in terms of flexibility, as compare to traditional State's administrations or other public organizations' status, in particular Public Administrative Organizations (*Etablissements publics à caractère administratif: EPA*)⁴ are:

- the autonomy of governance by an independent board of directors and *ad hoc* consultative committees,
- a management by a president, named by the French Republic President (Minister Council decree), with chairman and CEO authority like in a private company,
- an "*a posteriori*" control by budget authorities on many decisions⁵,
- and, last but not least, a private staff regime. CNES' employees are not subjected to a civil-servant regime.

From CNES 1961 Constitutive Act missions, as described here above, some additions were made before FSOA:

- Management of the Guiana Space Centre, as a result of the launch base implantation, under CNES responsibility pursuant to Decree 65-388, of May 21st 1965 and French Government-ESA Agreement on GSC, as above mentioned.
- Creation and/or stockholding⁶ in civil or commercial company, to extend or spin off its programs achievements, the major one being :
 - Arianspace SA, launch service provider, (since 1980),
 - Intespace SA, space environment ground facility testing (1983, now controlled by Astrium)
 - Spot Image SA, space remote sensing data distribution, (1983, controlled exclusively by Astrium since July 2008)
 - Simko, a private-public building estate company to support Kourou city development in Guiana, following the implantation of the GSC Launch Base (set up in 1976).

- French government representation at ESA board and program boards since its constitution in 1973 (effective in 1975)⁷ in association with the ministry for Foreign affairs
- Participation at the European Union' Space dedicated boards and committees, following its implication in Space affairs policy and programs since the 90's⁸
- Defence programs on space-segment responsibility (satellite platform or bus, except their sensitive payload). Cooperation with the Ministry of Defence was reinitiated in the 80's with the Helios Program, a Defence Earth Observation Satellite utilising the derived platform of the CNES' SPOT civil satellite. Following lesson learned from First Gulf War in 1991, French government decided to develop and strengthen a coherent Defence Space Policy. In this view, CNES' 1984 Functioning Decree was modified in 1993⁹ to add to the Ministry of Research in charge of Space Affairs, the Ministry of Defence as co-responsible for Governmental Space Policy, in particular for the CNES' governance and funding. Nowadays, the average defence contribution in CNES programs and budget is about 20%.
- Without any formal statutory decision, in line with or by extension of its traditional missions:
 - Government or private not standard satellite in-orbit positioning and control service provider.
 - Outer-stratosphere balloon launch and operation on behalf of scientific community, at national scale or through international cooperation.
- The term "space operation" means any activity consisting in launching or attempting to launch an object into outer space, or of ensuring the commanding (control) of a space object during its journey in outer space, including the Moon and other celestial bodies, and, if necessary, during its return to Earth;

Under article 2, the following persons are required to obtain an authorization from the Administrative Authority (the Ministry in charge of Space Affairs, i.e. the Ministry of Research according to the 2009 Authorization Decree):

“1° Any operator, whatever its nationality, intending to proceed with the launching of a space object from the national territory or from means or facilities falling under French jurisdiction, or intending to proceed with the return of such an object onto the national territory or onto facilities falling under French jurisdiction” (i.e. space object launching or return services from or onto the French territory or jurisdiction);

“2° Any French operator intending to proceed with the launching of a space object from the territory of a foreign State or from means or facilities falling under the jurisdiction of a foreign State or from an area that is not subject to the sovereignty of a State, or intending to proceed with the return of such an object onto the territory of a foreign State or onto means and facilities falling under the jurisdiction of a foreign State or onto an area that is not subject to the sovereignty of a State”; (i.e. space object launching or return services occurring outside the French territory or jurisdiction, but performed by French citizen, and then involving French Government indemnification under the 1972, liability convention)

3° Any natural person having French nationality or juridical person whose headquarters are located in France, whether it is an operator or not, intending to procure the launching of a space object or any French operator intending to command such an object during its journey in outer space. (i.e. any French Company, space operator or not, that intends (I) to procure a launch service for its satellite or/and (II) to operate such satellite in orbit).

Consequently, any foreign operator which procures a launch of a space object using the services of a French Launch Operator (Arianespace for example) shall not be subjected to FSOA (as a non French citizen as referred to in article 2 §3 here above). The authorization for the launch shall only be applied for

2.2 – FSOA's main features

2.2.1 - Persons and Space Activities subjected to FSOA

The FSOA is only applicable to space operations altogether with space operators. The definition of which is given by article 1:

- The term "space operator" (hereafter operator): means any natural or juridical person carrying out a space operation under its responsibility and independently;

by the relevant French launch service operator according to article 2 §1, and only for the launching phase.

According to article 3, the transfer of the control of a space object also requires a governmental authorization (article 3) in the following conditions:

- “The transfer (*by selling or any other mean*) to a third party of the control of a space object which has been authorized pursuant to FSOA is subject to prior authorization,
- any French operator intending to take the control (*by purchase or any other mean*) of a space object whose launching or control has not been authorized under the present act (*i.e. a foreign satellite*) shall obtain to this end a prior authorization. “

2.2.2 - Condition for granting authorization (FSOA art. 4)

Authorizations to launch, to command or to transfer the commanding of a space object or to proceed with its return to Earth are granted by the administrative authority (*the Ministry of Research as ministry in charge of Space Affairs under the 2009 Authorization Decree*):

- of moral, financial and professional guarantees of the applicant, and if necessary from its shareholders,
- that systems and procedures to be implemented are compliant with the Technical Regulations (TR) set forth for the safety of persons and property, the protection of public health and the environment. Such Technical Regulations shall be issued by the Ministry in charge of Space Affairs, following CNES proposal, under FSOA art 4 §1 and 28 f).

Authorizations shall not be granted, if the operations or the systems intended to be implemented are likely to jeopardise National Defence Interests or the respect by France of its international commitments.

A licence system (i.e. a global framework authorization for a determined period of time to given operators for given operations) is set up to facilitate authorization application for experienced operators, at different scales:

- Licenses certifying that a space operator comply with moral, financial and professional requirements;
- Licenses attesting the compliance of given systems or procedures with the Technical Regulations;
- Licenses equivalent to authorizations for standard satellite operations.

The 2009 Authorization Decree set forth the terms of application of SOA article 4. It specifies in particular:

- The information and documents to be provided to support applications for authorizations, as well as the application procedure for these authorizations;
- The conditions under which the licenses equivalent to authorization may be granted, and the conditions under which the beneficiary of such a license shall inform the administrative authority of the space operations he undertakes.

A specific and simplified regime is reserved by SOA article 4 §4 for operations (such as launching services) which are to be procured by an applicant under article 2 §3, from the territory of a foreign State or under a foreign jurisdiction. Such activities, despite the fact they are to be performed and controlled outside the French jurisdiction, are likely to involve French liability and indemnification duty as a Launching State under the NU 1972 Liability Convention (as the State “which procures the launching of a Space Object”). In such case, the Administrative Authority may exempt the applicant from all or any part of the present technical compliance assessment, provided that such foreign country national and international commitments as well as its legislation and practices include sufficient guarantees, regarding the safety of persons and property and the protection of public health and the environment, and regarding liability matters.

2.2.3 FSOA’s Liability Regime

FSOA’s liability regime rationale is to concentrate the burden of liability on the sole Operator for any damage caused by its space operations to third parties (in case the French jurisdiction is competent). This indemnification regime (SOA art. 13) is largely derived from the UN 1972 Liability Convention:

- Absolute liability for damages on ground and in Air Space
- Liability on a fault basis for damages caused in outer space.

FSOA provides however specific clearance or limitation of liability for the authorized space operators, except in the event of a wilful misconduct:

- Limited Period of liability. Operators liability obligations ends in any case when the requirements set out in the authorization for its own phase of responsibility (i.e. the “launching phase” for a Space Launch Operator, or the “in orbit commanding phase” for a Satellite Operator), are fully fulfilled, or at the latest one year after the date on which these obligations were deemed to be fulfilled according to such authorization. The Government then supersedes operator’s indemnification obligation for any damage occurring after this period.

- Liability allocation between the French Government and space operators has been construed in the form of an indemnification ceiling, wherever the claim may arise from (FSOA articles 14 to 19). Should any FSOA's authorized operator (or exceptionally one of its sub contractors) being sued and condemned by a domestic court or by a foreign court, or should the French Government being obliged, under to the UN 1972 liability convention, to indemnify any foreign victim for damages caused by any authorized operations under FSOA, the French State Guarantee (ceiling) is granted to such operator for any indemnification payment exceeding approx. 60 Million € (the Fiscal Act set up a bracket between 50 and 70 M€, but due to the Intergovernmental European Launchers Exploitation Declaration, this amount is being frozen at 60 M€ for Ariane, Vega and Soyuz M€).
- Cross waiver of liability and hold harmless clause. SOA article 20 confirms the validity and establish a "by default" cross waiver contractual regime between the associated parties to the space operations:
 - No claim between the participants to an authorized space operation (Launch service operator, Launch base operator, manufactures, sub contractors...)
 - This provision shall be self-enforceable and mandatory between the participants
 - Sole legal exception: if otherwise expressly provided for in a contract between participants to the on-orbit command of a satellite

This concentration of the liability on the operator along with the enforced cross waiver of liability provisions shall hold harmless operator's contractors and subcontractors from being sued by third parties and thus limit their need of an insurance coverage.

- Insurance. As an equitable counterpart of the State's guarantee here above, the operator is required by article 6 to get an insurance coverage for damages to third parties below the aforementioned ceiling (i.e. 60 M€) or to get equivalent financial guarantees. This shall benefit namely to the Government, ESA, the operator and the persons having taken part in the space operation or in the production of the space object

2.3 – Mission entrusted to CNES and to the CNES' President by FSOA and the question of potential conflicts of interests

It is to be underlined that through FSOA the French government delegated to CNES and its President the whole of its technical responsibility in authorizing and monitoring space operations under its jurisdiction.

This delegation scheme was originally proposed on April 2006 by the State Council (Conseil d'Etat) itself in its preliminary study report named "A Legal Policy for Space Activities" (here above referenced).

In this report (page 77 and 78), the State Council assumes that it is not necessary to create and independent authority to regulate the space sector, as previously done in others economical sectors such as telecommunication and energy. It suggests that the future SOA's implementation decree appoints the Ministry of Space Affairs as the Administrative Authority in charge of delivering authorization.

Meanwhile it recommends, due to the unique CNES' technical expertise, especially in the launchers area, and the lack of resources and means of the Ministry of Space Affairs on such technical fields, to delegate to CNES, the assessment of compliance of the space systems and procedures with the Technical Regulations.

It is to be underlined, that the State Council especially points out the risk of "conflict of interests" between new CNES SOA missions and its previous missions (under RC article L 331.2), in particular as contracting authority, operator (on orbit positioning and maneuvers) of private satellite, and as shareholder of Arianespace SA and Spot Image SA.

It does not retain however any legal impediment, provided that CNES should separate its activities into two different sectors (SOA and non SOA activities), shall end any supply of commercial services and transfer its shareholdings in business companies to another governmental agency, the State Participation Agency (*AFP "Agence des Participations de l'Etat"*).

Such legal opinion from the State Council (by its Study and Report Section) and endorsed by its Plenary Assembly was very helpful for SOA's law making process, given the fact that despite its legal advisory and assessment role on regulatory matters on behalf of the Government, the State Council acts as well *in fine* as the French Supreme Administrative Court.

On its side, Claudie Haigneré the Minister for Space Affairs, in a 2002 preliminary report drafted by its department ("Space law Evolution in France"), urges to strengthen CNES missions under the future space legislation, by entrusting it with a technical authority in certifying, controlling and holding registries of space activities. The content of this report also analyses the risk of conflict of interests and proposes remedies (page 42 to 45)¹⁰.

The Henri Revol's report on behalf of the Senate Economics Affairs Commission, (report n° 161 here

above mentioned, page 42 and 43) also recommended to legitimate such CNES technical authority for FSOA's purposes and, noting possible conflicts of interests, calls for a non questionable disengagement of CNES from any activity and stock holding incompatible with the exercise of its new legal responsibilities. A special annex to this report (annex II page 93 to 95) makes a comprehensive inventory of CNES' current interests in competitive activities, distinguishing on the one hand CNES commercial activities with a description of its situation and remedies already taken or to be taken and, in a second hand, CNES shareholding's situation and remedies taken or to be taken. The text suggests that CNES abandon any on orbit services for private companies and commercial satellites and to withdraw from Arianespace and Spot Image stock.

Last but not least, The European Commission seized by the French Government on April 2007, on the basis of C.E. Treaty article 88 § 3 (State Liability Ceiling conformity / E.C. Public Aid Legislation) take note of "measures undertaken by French authorities in order to prevent any conflict of interest between CNES technical control of Space operations and its commercial activities directly or by means of its participations". Mention was made that the governance of CNES guarantees sufficient independence through the traditional framework convention between ESA and Arianespace since 1980, as renewed following the 2007 Intergovernmental Launcher Declaration on European Launchers exploitation.

2.3.1 Mission entrusted to the CNES as legal body

FSOA CNES' missions focuses on the assessment of technical compliance of space operations with the Technical Regulations and on Registration of French Space Objects as set forth in SOA article 28 article and translated in article L. 331-2 of the Research Code *f*), *g*) and *h*):

"*f*) To assist the Government in the definition of the technical regulations relating to space operations;

"*g*) To certify, by delegation of the minister in charge of space, that the systems and procedures implemented by the space operators comply with the technical regulation mentioned in paragraph *f*);

"*h*) To hold the register of the space objects on behalf of the Government."

2.3.2 – Mission entrusted to the CNES' President personally

FSOA CNES' President Authority is legally qualified as an "Administrative Police mission" i.e. a set of preventive measures to avoid any regulatory infringements, as opposed to the "Judicial Police", which purpose is to stop and punish any infringement.

Such CNES President authorities are set forth in SOA article 21 and translated in article L. 331-6 of the Research Code as follows:

At the GSC:

- CNES' President exercises on behalf of French Government the Special Exploitation Police on facilities of the Guiana Space Centre. As such, it is in charge of a general mission of safeguard consisting in controlling the technical risks related to the preparation and carrying out of the launches from the Guiana Space Centre in order to ensure the protection of persons, property, public health and the environment, on the ground and during the flight, and set out to this end the specific regulations applicable.

Basically, CNES' President would delegate most of this "Administrative Police" competence to the head of the GSC.

- In addition, CNES' President, under the authority of the Government representative in French Guiana, coordinates the implementation by companies and other entities settled in GSC of measures taken in order to ensure the security of the facilities and of the activities undertaken therein, and check that those companies and agencies fulfil their obligations in this respect.

For emergency measures

More generally in case of emergency, CNES President, under FSOA article 21 III provisions translated into RC article L. 331-7, may take for any space operation, by delegation of the Minister in charge of Space, the necessary measures to ensure the safety of persons and property, as well as the protection of public health and the environment."

3- CNES' TRADITIONAL ACTIVITIES DEALINGS WITH FSOA' DELEGATIONS

CNES' missions under SOA dealing with the assessment of compliance with the Technical Regulations must be exercised in a independent, objective and impartial way, without interference from any relationship and interest.

A large survey has been made in 2009 by CNES over any of its business and interests in relation with potential applicants (private operators) for authorizations, in order to assess the potential risk of conflict of interests and to propose remedies as the case may be.

The following activities have been listed in this survey:

3.1 – CNES activities as Space program agency

As a procurement agency for the needs of its space programs (new launcher satellite assets or services purchase, R&D contracts award...), CNES is subjected to the Ordinance n°2005-649 of June 6th 2005 relating to contract concluded by certain public and private establishments not being subjected to the Public Procurement Contracts Code.

Such ordinance is derived from EC directives¹¹ on the same subjects. It requires that contract award respects the principles of freedom of access to procurement, equal treatment of candidates and transparency of procedures. These principles call for prior definition of the procuring entity's needs, compliance with the publication and competition requirements and selection of the economically most advantageous tender. On this basis, the risks of conflicts of interests can be reasonably diverted for such procuring mission.

CNES policy in favour of new technology promotion and incubation is no more impaired as a result of FSOA.

3.2 – CNES activities as Technical Center and Space Operator

In addition to its main missions as technical center in Toulouse (Satellites, Science, Space Applications), Evry (launcher programs) or GCS (launch base management, security and safety..) CNES is allowed to supply services, grant access to its facilities and give expertise support to private companies, on a non discriminatory basis and at a reasonable costs (between the real cost and the market price), provided that this activity does not jeopardize its main missions according to CR art L331-2 a to e .

As a consequence, the following activities for CNES won't be affected by FSOA implementation :

- On orbit operation for governmental entities (including ESA, EUMETSAT, inter-governmental or agency cooperation)
- Marginal utilization of testing facilities, computing facilities, station network (2GHz)...
- Payload preparation facilities, physics and chemical measures laboratories managed by CNES at GSC

On the other hand, CNES shall ends any questionable supply activity, such as:

- On orbit operation for private entities, French or not (Eutelsat, SES Astra,), or for governments if awarded in a international or competitive call for tender.
- Any supply contract (as sub-contractor) on behalf of a prime manufacturer or a space

operator for a space system (satellite or Launchers) potentially subject to FSOA's authorization or control regime. The same applies towards European competitors of the abovementioned manufacturers or operators in order to avoid any interference in the European market competition.

- Quality support, computing services (trajectory optimization...) for Arianespace.

3.5 – CNES' Stock Participations and Partnerships with Private Companies

The authorities consulted during FSOA's lawmaking process, i.e. State Council, National Assembly, Senate, French Government, European Commission... unanimously underlined that CNES should abandon its shareholdings in Arianespace SA and Spot Image SA, before SOA's entry into force.

CNES sold in July 2008 the whole of its stockholding in Spot Image SA to the Astrium SAS company (an EADS subsidiary in satellite sector).

For Arianespace SA, the purpose is to transfer, as soon as possible, CNES' shares to an independent French Public body (as the "Public Participation Agency" for example) through an appropriate process to be implemented so as to not interfering with such company shareholding geographical and industrial's balance or any other binding commitments resulting from ESA.

4 NEW RULES FOR CNES' STAFF

CNES must guarantee, for itself and for its agents, that any data or information transmitted to it by operators or any private company for the needs of the authorization's application or monitoring process or for the needs of GSC' Regulations shall be kept confidential and strictly used for the purposes defined by SOA .

This confidentiality obligation shall apply either:

- towards any third party, to any data, information and not only proprietary information, for any form of communication. For example, the dissemination of information about a minor failure in a system, even not sensitive on a technological or safety point of view, can have considerable consequences on the value of the relevant space operators stock quotation and business and must be avoided.

- towards any other CNES activities or staff, in particular: CNES staff involved in missions and systems development projects, upstream technical or technological research (in other words activities performed under CR article L 331-2 a to e)

CNES' staff rules for the assessment of compliance and for the GSC Special Police regime

Three categories of personnel are involved in SOA's activities. All this staff is subject to a specific regime as refers to hierarchy, confidentiality and deontology rules.

- FSOA Controllers (FSOA art 28)

CNES FSOA' Controllers shall check and assess that systems and procedures implemented by the operator comply with the FSOA's Technical Regulation. They intervene during the authorization application process or after, during the preparation phase of the space operation or its carrying out.

Controllers are appointed by CNES' President for a given period of time (3 years normally).

This staff, assigned exclusively on FSOA' technical compliance responsibilities are not allowed to work in any other CNES' fields of activities (and reciprocally), for the duration of their controller's mandate. Controllers shall subscribe specific deontology and confidentiality commitments.

- Commissioned Officers

The Commissioned officers are empowered to proceed to, the necessary controls (only after the granting of the authorization, during the preparation and implementation phases of the space operation) in order to ascertain that the special requirements (if any under article 5) mentioned in the authorization are fulfilled.

As part of their assignment, Commissioned Officers shall have access at any time to the buildings, premises and facilities where space operations are conducted and to the space object itself. They can ask for any document or useful item, irrespective of their *medium*. They can make copies and gather any necessary information and justification, *in situ* or upon notification.

The operator is informed at the latest when the controlling operations begin that he may attend the operations and be assisted by any person of his choice, or that he can be represented for that purpose.

The Commissioned Officers are bound by professional confidentiality under the conditions and penalties set out by Article 226-13 and 226-14 of the Penal Code.

They are appointed and dismissed by the Ministry in charge of Space Affairs under proposition of CNES' President (FSOA article 7 I. 1° and 2009

FSOA's Authorization Decree art 19, 21, 22 and 23).

- Sworn officers (Judicial police)

Sworn officers are Commissioned Officers with Judicial Police powers. In addition to their ability to have access at any time to the buildings, premises and facilities where space operations are conducted and to the space object, Sworn officers are authorized, in accordance with the Code of Criminal Procedure, to investigate and record any breaches to FSOA' requirements, in particular facts that give rise to a fine of € 200 000, pursuant to article 12 or, pursuant to article 10, entails a withdrawing or a suspension of the granted authorization,.

Sworn officers record these breaches in reports which are considered authentic unless the contrary is proved. Such reports are sent to the *Procureur de la République* (Head of the Prosecution Department at courts of first instance of general jurisdiction), the latest deciding either to suit or not the infringer.

Sworn officers take an oath, after endorsement by the Head of the Prosecution Department, at the Court of first instance of General Jurisdiction (TGI) under FSOA's Authorization Decree art 19, 21, 22 and 23.

5 - CONCLUSION

The assessment made by CNES over any of its business in relation with private operators potentially subject to the SOA authorization and control regime, in order to assess conflict risks, has not revealed any critical impediment.

This appraisal has contributed to identify a set of "acceptance (or no) criteria" and pricing policy for supply activities, mainly on the basis of the French Public Service Legal Doctrine or Case Law¹², in accordance with the European law i.e:

- Continuity of service, transparency, non-discrimination, pre-defined pricing policy based on real costs, no subordination links with a private company, activities in close relation with a public investment or facility, priority given on CNES traditional missions, no commercial or competitive activities.

Accordingly, solutions and remedies allowing to avoid any conflict of interests as to ensure legal compatibility among CNES' various missions as a fully competent Space Agency and pursuant its FSOA's responsibilities can be summarized as follows :

- CNES must abandon any commercial or competitive activity or interests in private companies;

- CNES is allowed to supply remunerated services only in a “public service” contract framework;
- CNES organization must set up a “Chinese wall” between its traditional missions (RC L331-2 a to e) and its new FSOA’s responsibilities (RC L331-2 f to h and L 331-6 and 7).

Bibliography

Couston Mireille, Commentaires sur la loi française relative aux opérations spatiales (*Comments on the French Space Operation Act*) Revue française de droit aérien, 01/07/2008, n° 3, Page(s) 327 -332.

¹ European Space Agency

² Le Centre national d'études spatiales a pour mission de développer et d'orienter les recherches scientifiques et techniques poursuivies en matière spatiale.

Il est notamment chargé :

- a) De recueillir toutes informations sur les activités nationales et internationales relatives aux problèmes de l'espace, son exploration et son utilisation ;
- b) De préparer et de proposer à l'approbation de l'autorité administrative les programmes de recherche d'intérêt national dans ce domaine ;
- c) D'assurer l'exécution desdits programmes, soit dans les laboratoires et établissements techniques créés par lui, soit par le moyen de conventions de recherche passées avec d'autres organismes publics ou privés, soit par des participations financières ;
- d) De suivre, en liaison avec le ministère des affaires étrangères, les problèmes de coopération internationale dans le domaine de l'espace et de veiller à l'exécution de la part des programmes internationaux confiée à la France ;
- e) D'assurer soit directement, soit par des souscriptions ou l'octroi de subventions la publication de travaux scientifiques concernant les problèmes de l'espace ;

f) (FSOA, article 28) D'assister l'Etat dans la définition de la réglementation technique relative aux opérations spatiales ;
 g) (FSOA, article 28) D'exercer, par délégation du ministre chargé de l'espace, le contrôle de la conformité des systèmes et des procédures mis en œuvre par les opérateurs spatiaux avec la réglementation technique mentionnée au f ;
 h) (FSOA, article 28) De tenir, pour le compte de l'Etat, le registre d'immatriculation des objets spatiaux.

³ The Ariane production (and exploitation) scheme was originally defined by the “Ariane Inter Governmental Production Declaration” adopted on January 14th 1980, between the associated Ariane Programme European Participating State, and implemented through ESA-Arianespace convention or arrangement. This organization has not been changed up to nowadays.

It is to underline further that under such Declaration (still into force as renewed on March, 30th 2007), the French Government is sole Responsible State (as a Launching State as referred to in the 1972 U.N. Liability Convention) with indemnifying any accident victims caused by Ariane Launch services performed under Arianespace responsibility from the GSC.

Schmidt-Tedd Bernhard and Arnold Isabelle, “The French Act relating to space activities - From International law idealism to national industrial pragmatism”, for European Space Institute, ESPI Perspective N° 11, August 2008.

Lucien Rapp, “Une loi spatiale française” (*A French Space Law*), *ADJA, Actualité Législative*, September, 29th 2008, pages 1755...

⁴ Such as METEO France, IGN (*Institut Géographique National*) the national geography agency, state museums, universities and high schools, official academies and agencies in France...

⁵ Decree no. 84-510 of 28th June 1984 relating to the Centre National d'Etudes Spatiales, Article 5.

⁶ As an application of CNES constitutive Act, CR article L331-2 c « CNES is entrusted to:...(c) to ensure implementation of such programs, either in laboratory and technical establishments created by itself, or by means or research convention settled with other public or private organizations, or financial share (stock holding)

⁷ The text of the ESA Convention elaborated by the VI^o CSE on 1973 July 31st and September 20th (Ref.CSE CS(73)19,rev.7) was approved by the Conference of Plenipotentiaries held in Paris on 30 May 1975. The Convention was signed after this Conference by all Member States of the European Space Research Organisation and of the European Organisation for the Development and Construction of Space Vehicle Launchers (ESRO and ELDO) and opened for signature by the members States of the European Space Conference.

The European Space Agency functioned de facto from 31 May 1975. The ESA Convention entered into force on 30 October 1980. Date of deposit of instruments of ratification. A Cooperative Agreement between ESA and Canada as associated member entered into force on 1 January 1989:

⁸ For a quick recall on the EU Space Policy building Key Steps:

- First EC Communication on Space on 1988, July 26th (com(88) 417 final)
- First implication of EC in a space asset program development in 1992 with the inclusion of space projects in the Research Framework Program (FP 4) with a share cost action in the remote sensing Vegetation Instrument , a joint program with Belgium, France Italy and Sweden, on board the French Satellite Spot 4.
- First meeting in 1993 of the European Commission Space advisory Group (SAG), an open consultative working group following a second EC Communication on Space sector (EC 1992)
- Launching of the Galileo project (civil satellite navigation and positioning system) with ESA in the 2000's, initiated by Council Regulation, in particular

(EC) No 876/2002 of 21 May 2002 setting up the Galileo Joint Undertaking

- Green Paper of 21 January 2003 on European Space Policy (COM(2003) 17 final) paving the way for European Space policy, strategy funding, institutional regulation and governance with ESA and their European Member States. The Galileo Program and the GMES initiative (global monitoring for environment and security) are given as examples of the new EU role in Space Policy. Entry into force in May 2004 of the EU-ESA Framework Agreement First European 'Space Council 25 November 2004 –, a joint meeting of the EU Council and the ESA Ministerial Council,
- Lisbon Treaty on the Functioning of the UE (TFEU), in its article 4 defines a new shared competence regime for Space and Energy that can coexist with national space policies, included through ESA organization (Treaty signed on 2007 December 13th, published on 2008, May 9th Official Journal of the European Union C 115/131). Then the Treaty specifies the framework of EU Space policy and programme in its article 189:

“1. To promote scientific and technical progress, industrial competitiveness and the implementation of its policies, the Union shall draw up a European space policy. To this end, it may promote joint initiatives, support research and technological development and coordinate the efforts needed for the exploration and exploitation of space.

2. to contribute to attaining the objectives referred to in paragraph 1, the European Parliament and the Council, acting in accordance with the ordinary legislative procedure, shall establish the necessary measures, which may take the form of a European space programme, excluding any harmonisation of the laws and regulations of the Member States.

3. The Union shall establish any appropriate relations with the European Space Agency.”

- For a comprehensive study on EU Space Policy building see “the Evolution of European Space Governance: policy, legal and institutional implications”, Leuven Centre for Global Governance Studies, Working Paper N° 25, 2009, by Florent Mazurelle, Jan Wouters and Walter Thiebau.

⁹ Decree n° 93-277 dated 1993 March 3rd amending CNES' Decree n° 84-510 of 1984 June 28th.

¹⁰ Study report from the Ministry for Research and New Technology in charge of Space affairs, “Evolution of Space law in France”, February 2003. Colloquium on March 13th 2003. Reports and minutes published on French Ministry of Research website <http://www2.enseignementsup-recherche.gouv.fr/rapport/droitesspace/synthesea.pdf> and http://www2.enseignementsup-recherche.gouv.fr/rapport/espace_environmentjuridique.pdf (summary available in English).

¹¹ Council directives 89/665/EEC, December 21st 1989 and 92/13/EEC February 25th 1992 - Council and Parliament directives 2004/17/EC and 2004/18/EC March 31st 2004.

¹² Conseil d'Etat, « Quelle tarification pour les services liés à l'usage des infrastructures », Dossier documentaire, Les entretiens du Conseil d'Etat, Paris 16/12/2009.

