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RECENT DEVELOPMENTS IN REMOTE SENSING AND THE DESIRABILITY OF REVIEWING THE  
1986 UN PRINCIPLES RELATING TO REMOTE SENSING OF THE EARTH FROM OUTER SPACE

**THE INTERNATIONAL LEGAL FRAMEWORK OF REMOTE SENSING IN THE  
YEAR 2005: CHANGED CONDITIONS AND CHANGED NEEDS?**

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Mr. Chairman, ladies and gentlemen,

The subject of my contribution today is “The International Legal Framework of Remote Sensing in the Year 2005: Changed Conditions and Changed Needs”. At the end of this title, a question mark should be set. Why? I think we shall be able to agree on the fact that conditions have clearly changed since the elaboration of the 1986 principles. It will be much more difficult to assess, however, whether also the needs of the actors involved in this activity have changed: Only in some cases there exist express formulations of the future policies on remote sensing as e.g. the proposals which some States presented to the UN Legal Sub-Committee; in most of the cases, the corresponding assessment can be derived only from the factual practice, i.e. how the States concerned are performing their activities.

Because of the tight time schedule and because of the subjects of the following contributions I shall limit my presentation to several general remarks in which I shall try to offer to you the main characteristics of the substantive differences between the legal and factual situation at the time of the elaboration of the 1986 remote sensing principles and today.

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## I. Changed Conditions

1. Speaking on the changed conditions of remote sensing activities, the first point has to reflect the change in the general **political situation**. It is generally known that the UN Principles are a “child” of the Cold War period and the east-west antagonism. It is not necessary to remind you of the fact that the fear of the then socialist States and numerous developing countries of an unlimited sensing of their territories contributed to the proposals of an international regime at the end of the 1970ies: This regime should have been based mainly on the principle of state sovereignty and should have been generally restrictive in its nature. In contrast thereto, other States were interested in the unlimited observation of the Earth and supported an open system of remote sensing the core of which should have been the non-discriminatory-access rule. As all of you know, the result was a non-binding compromise which sought to achieve a balance between the two political approaches but did not satisfy the objectives of any of them.

Today, the actors of remote sensing base their needs on substantially different conditions: The former east-west antagonism has been replaced by the north-south divide which influences the developments of the international space law policies. The consequence of this changed situation seems to consist of, in particular, a reduced interest in the restrictive approach to remote sensing and an increased reliance on policies of coordination and cooperation.

2. My second point concerns the increased **number of States** which constitute remote sensing actors.

In the 1980ies, there were only a few States which had their own remote sensing programmes – the main actors were, without any doubt, the USA and the USSR.

Nowadays, however, a new generation of space faring nations has appeared: Not only the number of the nations placing human beings into outer space has increased – as you know China became, in the meantime, the third nation to achieve this goal – but also in the area of remote sensing, the number of States including developing countries which have their own remote sensing programmes, has grown considerably. Let me mention several examples as they figure in the UN Register of Space Objects established by the UN Secretary - General: Algeria is in possession of her own Earth observation and disaster monitoring satellite,

ALSAT-1<sup>1</sup>; Argentine has registered  $\mu$ SAT-1<sup>2</sup> and SAC-C<sup>3</sup>; Brazil has launched – together with China – an Earth Resources Satellite<sup>4</sup>; China operates its ZY-2 Remote Sensing Satellite<sup>5</sup>; Chile has registered an ozone layer monitoring satellite FASAT Bravo<sup>6</sup>; India launched the Resourcesat -1<sup>7</sup>. Pakistan has constructed the BADR-B<sup>8</sup> and also Nigeria is in possession of her own remote sensing satellite, the NigeriaSat1.

The consequences thereof is that the data of remote sensing do not any more represent extremely rare products available only to a very limited number of actors. This development has transformed some of the former customers into the providers of the Earth's data and influenced the conditions on the remote sensing products market.

3. Speaking on the changed spectrum of remote sensing actors, the increase of the importance of the **commercial** entities involved in remote sensing and the development of a **hybrid public-private** environment has to be mentioned.

Whereas, in the 1980ies, the States were the main actors of remote sensing and in those States with a strong private sector the public and private sectors were clearly separated, the post-Cold War national budgets have created pressure to forge public-private partnerships even in nations historically committed to the separation of these sectors. Today, leading remote sensing nations including France, Canada, India and Japan, operate remote sensing systems based on mixed public-private institutions and principles. Even in the USA, where separation of public and private institutions is the standard approach, government-owned space corporations are considering such cost-saving measures<sup>9</sup>.

4. My fourth issue concerns the fact of the emergence of specific **national legislation** on remote sensing and the pertinent practice.

I shall not mention the 1992 US Land Remote Sensing Policy Act and the relevant practice since the USA had their own legislation on remote sensing already in the 1980ies<sup>10</sup>. But since the elaboration of the UN remote sensing principles, other States have taken the same

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<sup>1</sup> A/AC.105/INF.408.

<sup>2</sup> ST/SG/SER.E/317.

<sup>3</sup> ST/SG/SER.E/382.

<sup>4</sup> A/AC.105/INF.404.

<sup>5</sup> ST/SG/SER.E/420.

<sup>6</sup> ST/SG/SER.E/422.

<sup>7</sup> ST/SG/SER.E/440.

<sup>8</sup> ST/SG/SER.E/403.

<sup>9</sup> *J. I. Gabrynowicz, Space Law: Its Cold War Origins and Challenges in the Era of Globalization*, 37 *Suffolk U. L. Rev.* (2004) pp. 1041 – 1065, at 1056.

<sup>10</sup> 1984 Land Remote Sensing Commercialization Act.

direction: France, e.g., has issued her remote sensing legal framework<sup>11</sup>, Canada the Access Control Policy<sup>12</sup> and India her national policies<sup>13</sup> which are of relevance for remote sensing. In the States with pertinent national legislation, remote sensing activities are thus not any more a national activity *extra legem* but are subject to various licensing and supervisory systems of State organs and institutions.

5. The next difference deals with the emergence of various international **Non-State Actors** using remote sensing data:

In the field of my present analysis, several international non-state actors are expanding their activities. As example can be mentioned the foundation of the Global Spatial Data Infrastructure (GSDI) Association which is an organization of institutions, agencies, companies and individuals aiming at promoting the international cooperation in support of spatial data infrastructure and, thus, better “addressing the social, environmental and economic issues”<sup>14</sup>.

6. The next developments concern the **convergence** of civil and military programmes using remote sensing methods. Whereas in the 1980ies remote sensing was limited to the purpose of improving natural resources management, land use and the protection of environment<sup>15</sup>, the precise demarcation of these two forms of activities is today technically hardly practicable. Technical parameters of the sensors orbiting the Earth have improved dramatically and only the very intention of their application seems to justify drawing a differentiating line between them today.

As an example of the convergence of civil and military programmes of Earth observation can be mentioned the merger of the US civil Polar Orbiting Operational Environmental Satellite program (POES) with the US military’s defense Meteorological Satellite Program (DMSP), coordinated with the Eumetsat’s satellites METOP to create a Joint Polar System (JPS)<sup>16</sup>. Another example of this convergence is the European Global Monitoring for

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<sup>11</sup> P. Clerc, *The State of Remote Sensing Law: French Regulation in Practice*, in: J. Gabrynowicz (ed.), *Proceedings, 1<sup>st</sup> International Conference on the State of Remote Sensing Law (2002)*.

<sup>12</sup> P.J. Baines, *Balancing Interests: Towards Further Progress in the Development of a Regulatory Regime for Commercial Remote Sensing Space Systems in Canada*, *ibid.*

<sup>13</sup> M. Rao et al., *Issues for a Remote Sensing Policy and Perspective of the Indian Remote Sensing Data Programme*, *ibid.*

<sup>14</sup> [Http://www.gsdi.org/Default.asp](http://www.gsdi.org/Default.asp).

<sup>15</sup> See Principle I of the 1986 UN Resolution.

<sup>16</sup> Agreement between the U.S. National Oceanic and Atmospheric Administration and the European Organization for the Exploitation of Meteorological Satellites on an Initial Polar-orbiting Operational System, Nov. 19, 1998; Agreement between the U.S. National Oceanic and Atmospheric Administration and the

Environment and Security (GMES) initiative, a joint project of the European Union and the European Space Agency which should offer a permanent, independent observation capacity for political decision-making on the basis of information on environment, agriculture and foreign policy<sup>17</sup>.

These technical changes raise a question as concerns the feasibility and practicability of creating different legal regimes for these two space activities; to be precise, I do have my doubts as to the practicability because I see considerable problems as regards the possibility of effectively controlling the correct implementation of those binding rules which, in the framework of such systems, might be adopted in the future. The decision is further complicated by the fact that the merged US – European system I have mentioned before, has the capacity of its US part to selectively deny critical environmental data to an adversary during crisis or war and ensuring data use by the US and its allies<sup>18</sup> which would hardly comply with the non-discriminatory-access approach embodied in the present UN remote sensing principles.

7. A similar question concerns the improvement of the technical potential of remote sensing methods and the possibility to apply it as national means of **verification**.

In the 1970ies and 1980ies, there was a sharp line between those uses of satellite images which served primarily verification purposes and “remote sensing” methods; this differentiation was also reflected in the legal regulation of both activities.

The technological progress of the 1990ies resulted in such an improvement of remote sensing methods that – from the technical point of view – there is no more any substantive difference between their potential and that of satellite verification. Many of the space systems are constructed already to have not only a single, but a multiple capacity which makes their traditional separation almost impossible. The question remains whether and how these two different purposes should be reflected in the legal terms: The legal regime of the disarmament agreements such as the SALT and ABM Treaties, as well as START I and START II, are controlled by national means of verification which are generally understood so as to mean that they do include imaging satellites. However, the definition of the scope of the UN remote sensing principles could not be interpreted as giving the sensed state a right of access to data from other countries surveillance satellites!

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European Organization for the Exploitation of Meteorological Satellites on Joint Transition Activities Regarding Polar-orbiting Operational Environmental Satellite Systems, June 24, 2003, 2003 U.S.T. Lexis 49.

<sup>17</sup> J. I. Gabrynowicz, *supra* note 9, p. 1058.

<sup>18</sup> *Ibid.*, at 1060.

8. The last development I would like to mention today is the present strong tendency towards a development of **global** space-based systems for the monitoring of the Earth. Of course, there were attempts to create an international remote sensing organization already in the 1970ies<sup>19</sup> which was envisaged to collect all remote sensing data and to make them available to the States concerned, together with providing assistance to the developing countries in this field. This project turned out to be unrealistic in that period of time but the idea of the necessity of coordinating the sources of remote sensing remained attractive for many countries. There were the enormous and terrible natural disasters of this and the previous years which gave a new impetus for efforts to implement these ideas.

First, the International Charter on Space and Major Disasters as the first internationally coordinated and comprehensive system that integrates different space resources and makes them available for the wider community<sup>20</sup> should be mentioned, initiated by ESA and CNES, signed on October 20, 2000 and operational since November 2000. The Charter includes six member space agencies now<sup>21</sup> which provide data from their satellites – on the basis of an authorized request – free of charge to States affected by natural or man-made disasters.

Further, it should be stressed that on 16 February 2005, representatives of more than 50 governments met in Brussels to discuss and promote the development of a comprehensive Global Earth Observation System of Systems (GEOSS)<sup>22</sup>. One of the results of this meeting is the Standing Arrangement of this new structure with the WMO to provide home for the proposed GEO Secretariat, while the Government of Switzerland declared its support and contributions to its establishment in Geneva. Many of the developing countries are strongly involved in this initiative.

The main goal of this network should be to coordinate the systems for gathering and distribution of Earth Observation data. This structure that would include a tsunami detection network, is given a promising future also in connection with the entry into force of the Kyoto Protocol on Climate Change the implementation of which could be monitored e.g. by Earth observation means.

In the context of the creation of this system, several legal questions have to be answered: How to guarantee that the free sharing of the satellite information will not endanger the financing of the existing observation systems? How to coordinate its future activities with the

<sup>19</sup> F. Nozari, *The Law of Outer Space*, Stockholm (1973), 187 ff.

<sup>20</sup> A. Ito, *Legal Aspects of the International Charter on Space and Major Disasters*, IAC-04-IISL-2-15, p.1.

<sup>21</sup> CNES, ESA, Canadian Space Agency, National Oceanic and Atmospheric Administration (NOAA), Indian Space Research Organization and Comisión Nacional de Actividades Espaciales (CONAE).

<sup>22</sup> [Http://earthobservations.org/organization.asp](http://earthobservations.org/organization.asp).

presently existing international structures, such as those international organizations which are parts of the UN system and are currently involved in satellite observation activities, such as FAO, UNESCO, UNEP, WMO and others ? And, last but not least, how to make this legal framework cope with the present UN Remote Sensing principles? Shall it make them superfluous at the end? Or shall it put them into the centre of its attention and modify them for its needs?

## II. Changed Needs?

Mr Chairman, ladies and gentlemen, can we - on the basis of what I have said with respect to the changed conditions – now appropriately assess the changed needs of the present actors of remote sensing ? Let me try:

First, it seems that the interest, by the sensed States, in the protection of data from their own territories is decreasing. With the growing number of States involved in remote sensing activities, there seems to be rather an interest in an cooperation and coordination-based approach to remote sensing technologies which would enable also the developing countries to strengthen their position on the remote sensing market. Second, a decreasing interest in maintaining States as the only actors remote sensing activities can be identified. Third, there seems to be a growing consensus on the need for a coordinated, international system of Earth data which would be active primarily in the sphere of natural disaster prevention and of environmental protection.

This short overview of the changed practices in the area of remote sensing could only deal with some of the major aspects of these developments and is far from being complete. The idea to review state practices in this sphere and to renew the discussion on the UN Principles expressed by a group of States at the 43<sup>rd</sup> Session of the Legal Sub-committee of COPUOS in April 2004 is surely an important step for further evaluation of the future fate of the principles. An important role is played also by the ILA Space Law Committee led by Professors *Maureen Williams* and *Stephan Hobe* who – on the basis of the results of the session of the Committee in Berlin in August 2004 – distributed a questionnaire aimed at receiving further information on this subject<sup>23</sup>.

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<sup>23</sup> *M. Williams*, Introduction, Report on the Legal Aspects of the Privatisation and Commercialisation of Space Activities, ILA Berlin 2004.

### III. Conclusion

The conditions of remote sensing have changed substantially since the approval of the 1986 UN Principles. In my opinion, also the needs of many countries have changed considerably. Only reliable information on the practice of and by the actors of remote sensing will, however, enable us to draw appropriate conclusions on the further regulation of this activity – a regulation which would attract broad consensus and be realistic in its consequences.