

Towards a New Approach to Support the 1986 UN Principles on Remote Sensing

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Abstract

There are different references to international cooperation in remote sensing activities in accordance with Principle V and VI of the 1986 UN Principles on Remote Sensing. The final version of the Principles considered the standpoint of sensing and sensed states, an achievement of multilateral negotiation. However, since the adopted document was called 'principles' instead of 'treaty', we can notice that some countries did not agree to the creation of a binding document in this domain. After the adoption of this document, the question was how to determine the legal implications of the Principles. In this respect, there are two different opinions. Some states believe that the Principles should be considered as voluntary guidelines to be followed on a good faith basis. On the other hand, some states believe that the Principles should be considered as a binding document with the status of international customary law. Whereas in recent years, many States offer remote sensing data at cost or free, applying the Principles for sensing states and sensed states is very important and vital. With regard to national laws and policies, as high resolution imagery continues to be widely available through a multitude of sources, the divide between open access and restricted access has vanished. In reality control is not a viable national security policy. We have moved from an era in which a few developed countries had access to high resolution imagery to one in which virtually everyone will have such access. As a result, there are many complex national security concerns and policy issues that have yet to be resolved. Hence, it seems that the international community needs to improve the effectiveness of the Remote Sensing Principles and even explore the possibility of converting them into a treaty. Therefore, in this paper, the authors try to investigate legal challenges of the Remote Sensing Principles, and show that the current international regime is inadequate and to show how this problem may be settled through a new solution such as approving a treaty.

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I. Introduction

Earth observations can be generally be considered to be the sum total of observed characteristics and data regarding the earth atmosphere, land surface, the marine environment as well as water resources. This data is collected by a variety of technical methods including aerial surveillance and satellite platforms. The technical process regarding observing, recording and classifying objects on earth is commonly referred to as remote sensing. Remote sensing activities mean the operation of remote sensing systems, primary data collection and storage stations, and activities in processing, interpreting and disseminating the processed data". The definition of remote sensing activities includes activities that take place on earth, even after the data is downloaded to the receiving ground stations.¹

Remote sensing is undergoing a revolution in terms of information management, data control, and communication. In the past, the remote sensing community had strong and fundamental connections to the sensing states through the design and launch of sensors and orbital vehicles, the sale and distribution of data, and the grant money for research and development of applications. However, the current economic restructuring of the remote sensing community has resulted in a clear trend of other states and corporations entering the remote sensing market. This diversification, coupled with the development of a global information infrastructure, has created-a fundamentally different world in the distribution and analysis of high resolution spatial and spectral data. Remote sensing applications now permeate daily life and work and services range from agricultural use, environmental mapping and management, disaster management, meteorology, land use monitoring, urban planning, and geodetic to security and judicial processes.²

Fundamental changes are taking place in the world of remote sensing with respect to three primary developments. First, a new generation of space-borne sensors will be able to deliver high spatial and spectral resolution imagery on a global basis. Second, economic restructuring of the remote sensing community will transform the control and distribution of imagery and imagery-derived information generally away from government and into the private sector. Third, the development of a digital, global information infrastructure, such as the Internet, will allow for rapid global distribution of information to a worldwide user community. The combined effects of these developments could have significant legal consequences for all states. Remote sensing technology could soon develop the capability to generate and deliver

1 Lyall, F & Larsen, P.B (2009), *Space Law Treatise*, Ashgate, London, United Kingdom.

2 GEOSS, (2010), *Overview: The Group On Earth Observation 10 Year Implementation Plan*, Geneva, Switzerland, viewed 12 June 2012, <http://www.geo.org>.

a level of information detail that could violate common societal perceptions of individual privacy, and a number of direct legal consequences could result.³

There are a number of legal issues emerging regarding the impacts of advancing remote sensing technology. Several key issues emerge with respect to future monitoring technology. Because of its efficacy, the technology has always been of interest to the legal communities. There are three remote sensing applications in the legal arena: first applications aimed at the development of public policy, second investigatory applications, and third applications expected to produce admissible evidence. Aerial photographs and maps have been effectively and extensively used as evidence in court proceedings.⁴

The use and exploration of outer space is guided by norms and rules derived from the general principles of international law and those developed out of the unique experience in the space environment. Remote sensing is a space activity governed by international space law. Due to its transnational character, earth observation has been central to the implementation of international cooperative mechanisms in the use of outer space, if not the major catalyst for such international coordination and cooperation.⁵

The universal legal framework for earth observation, the United Nations Principles On Remote Sensing, is a reflection of the need to coordinate the use of remote sensing on international basis (The 1986 UN Principles). The 1986 UN Principles provide a basis for international law on the acquisition, dissemination and use of remote sensed data. While there is a trend towards a more restrictive interpretation of the Principles based on diverse national concerns, the efficacy and influence of the Remote Principles is acknowledged internationally. Yet, remote sensing from outer space, as both space and an earth-based activity, is governed by both general principles of international law as well as domestic law. In some instances, space-faring nations have enacted specific remote sensing laws, while some have only policies guiding the use of remote sensing data, and still more countries with neither laws nor policies on remote sensing. There are different references to international cooperation in remote sensing activities in accordance with Principle V and VI of the 1986 UN Principles on Remote Sensing. The final version of the Principles considered the standpoint of sensing and sensed states, an achievement of multilateral negotiation. However the adopted document was called 'principles' instead of 'treaty'. Whereas there are many complex

3 Gillen, Larry. (Eds.) (1986) *Photographs and maps go to court* / Falls Church, VA: American Society for Photogrammetry and Remote Sensing.

4 Quinn, J. M., and C. E. McIlwain (1979), Bouncing ion clusters in the Earth's magnetosphere, *J. Geophys.*

5 Christol, Q.C, (1991), *Space Law: Past, Present and Future*, Kluwer, New York, United States.

national security concerns and policy issues that have yet to be resolved. Hence, it seems that the international community needs to improve the effectiveness of the Remote Sensing Principles and even explore the possibility of converting them into a treaty. Therefore, this paper tries to investigate legal challenges of the Remote Sensing Principles, and to show how this problem may be settled.⁶

II. Remote Sensing Activities and International Cooperation

International cooperation has been the main element in the regulation of space activities. Space law encourages international cooperation as is reflected in the UN treaties and principles on outer space. COPUOS's main function is to promote international cooperation in space activities, as evidenced by COPUOS's mandate. Remote sensing is based on international cooperation. The debate was not focused on international cooperation as such but on how to implement international cooperation in remote sensing activities. International cooperation to facilitate technical assistance and capacity building for using satellite data to developing countries is a good example of cooperation in remote sensing activities. There are more cases of international cooperation in remote sensing under multilateral initiatives such as the Committee on Earth Observation Satellites (CEOS), the Integrated Global Observing Strategy (IGOS) or the Global Earth Observation System of Systems (GEOSS). The Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (Disasters Charter) is another case of international cooperation in remote sensing, in which satellite data is provided to mitigate the effects of natural disaster.⁷

In the 1970s there was an intergovernmental organization called the G-77 made up of developing countries from Latin-America, Asia and Africa. During the discussions on the 1986 UN Principles, sensed states that were also developing countries negotiated as a group under the coordination of the G-77. Developing countries were concerned about dissemination of remote sensing data of their natural resources. In their opinion this information could be a threat to their sovereign rights, which for developing countries included information on their natural resources. For instance, a foreign company would have satellite information that located an oil deposit in a developing country, and this company bought the land in which the oil

6 Gabrynowicz, JI, (2008), *The Land Remote Sensing Laws and Policies of National Governments: A Global Survey*, University of Mississippi, Mississippi, United States, viewed on 10 June 2011, <http://www.olemiss.org>.

7 C. Jiménez Monroy, (2010) *Legal and Institutional Aspects of Latin-American Space Cooperation AQUARELSat: The Water Monitoring Constellation*, E.M. Meijers Institute.

deposit was located at a very cheap price. In this case the developing country would be at a considerable disadvantage due to the lack of information about resources in its own territory. On the other hand, third parties would be at an advantage because they could have access to satellite data for locating valuable natural resources in developing countries. Thus, in order to protect sensed states, the proposal of the G-77 was to require prior consent from the sensed state to be sensed and prior consent to the distribution of satellite data of sensed states to third parties.

Regarding access to data, the main questions that were addressed in the COPUOS discussions on this subject: how do you obtain the data, what kind of data is obtained, and when is it obtained? The answers to these questions are included in the 1986 UN Principles. However, before reaching consensus on the draft of the 1986 UN Principles, there were different approaches to accessing satellite data; these are described below. The G-77 wanted to maintain control of satellite information over their territories. The G-77's standpoint: 'They request to have timely and non-discriminatory access to the primary data concerning their territories'. Therefore, the first position on behalf of the G-77 was that sensed states should have total access to primary data concerning their territories, and also called for restrictions to the dissemination of data over their territories. Sensed states were concerned about their ability to pay for satellite information. On the other hand, sensing states supported freedom to sense and to disseminate satellite information. In the Franco-Soviet approach they considered that sensing states should not be entitled to make public information concerning natural resources of sensed states, without the clearly expressed consent of the sensed state. Thus, the draft did agree with the right to sense, but did not agree with the dissemination of data to third parties without the consent of the sensed states.⁸

The proposal to give the UN a main role in remote sensing activities through a UN Centre in charge of satellite data distribution and indeed remote sensing operations was not accepted. Although, the United Nations is not in charge of remote sensing operations or data distribution, it shall promote international cooperation with technical assistance and coordination in remote sensing activities'. Consequently, this has been the main function of UNOOSA in remote sensing activities; promoting capacity building in remote sensing. Thus, all countries have access to remote sensing data on a non-discriminatory basis, but only to primary and processed data concerning their territory. This requires that the country which is obtaining the primary or processed data, count on experts to interpret the data to make remote sensing data useful. Moreover, the above Principle states that all countries have

8 J. Gabrynowicz (Ed.) (2002) *The United Nations Principles Relating to Remote Sensing of the Earth from space: A Legislative History – Interviews of Members of the United States Delegation* 142.

access to satellite data, but the access will be effective through a previous payment of the data in terms of reasonable cost, which is a broad statement.⁹

III. Legal Review of Principles Relating to Remote Sensing (1986 UN Principles)

The legal principles that govern remote sensing activities are based on international law, the UN Charter, the Outer Space Treaty and other UN treaties in outer space. In particular, the following concepts were developed in connection with remote sensing: international cooperation, the use of remote sensing applications for the benefit of all countries, associating remote sensing applications with issues of global interest.

The UN Principles reflect the need to make remote sensing data promptly available on a non-discriminatory and reasonable cost basis. The Principles reflect and is an elaboration of the basic tenets of international space law enshrined in the 1967 Outer Space Treaty. Fifteen Principles express the need to strengthen international cooperation in the field of remote sensing. States are required to conduct remote sensing activities “for the benefit and in the interest of all countries, irrespective of their degree of economic or scientific development” based on “the principle of freedom of exploration and use of outer space on the basis of equality”. The remote sensing was a new topic on which the two subcommittees of COPUOS worked to elaborate the first international legal document. The drafting of the 1986 UN Principles took more than 15 years of discussions and trade-offs among the Member States of COPUOS, until consensus was reached on the final document in 1986. The result was the adoption of the 1986 UN Principles adopted on 3 December 1986.¹⁰

Historical review of the debate on the legal aspects of remote sensing Remote sensing started to call for attention with the UN General Assembly resolution 2600 (XXIV) adopted on 16 December 1969. This resolution expressed the desire that Earth resources survey satellite programs would be available to produce information for all countries. In addition, the UN General Assembly invited Member States to share their experience and information on remote sensing, and; to continue the studies on international cooperation in remote sensing to benefit all countries. In 1985, the Austrian delegation drafted a proposal called ‘the compromise text of which included the viewpoints of both sensing and sensed states by supporting sovereign rights of sensed states. So the sensed states should have ‘timely and unhindered access on a priority basis at nominal cost, to all data and information over their territories’ and the dissemination of such data to a third party should require

⁹ I.H.Ph. Diederiks-Verschoor & V. Kopal, (2008) *An Introduction to Space Law* 77, 3rd ed.

¹⁰ Lyall & Larsen, 2009.

the prior consent of the sensed country. Consequently, the delegations in COPUOS reviewed the document. At the meeting of COPUOS in 1986, ‘the compromise text of was discussed and there were no objections by the State Members. Therefore by 1986 consensus had been reached on the 1986 UN Principles. Subsequently, during the next UN General Assembly on 3 December 1986, the 1986 UN Principles were adopted in resolution 41/65.¹¹

The 1986 UN Principles were the first international guidelines of conduct regarding remote sensing activities, and the first international legal acknowledgement of remote sensing activities. The 1986 UN Principles helped to clarify remote sensing purposes, applications and the conditions for accessing the data provided by this space technology. Another important contribution of the 1986 UN Principles is that they indicate the rights and obligations of ‘sensing states’ and ‘sensed states’ in the field of international cooperation in remote sensing activities. One of the most difficult issues in reaching international agreement was related to the access to satellite data. Remote sensing applications opened new legal issues, such as how to deal with data collection, processing and delivery. The main outcome of remote sensing missions is satellite data; the country that owns and controls satellite data is the one that has implicit power of information. This situation was the main concern of sensed states. The purposes of the 1986 UN Principles emphasize the benefits to society and national development, paving the way to trust in this technology by sensed states.¹²

Principle I includes the following purposes of remote sensing activities: improving natural resources management; land use; protection of the environment. In this context, natural resources management and land use are invaluable advantages for national development. And the protection of the environment is important at national and international levels, because this activity is crucial to realize sustainable development. Principle I provides that there is primary data which is raw data that are acquired by remote sensors and are transmitted or delivered to the ground from space by telemetry in the form of electromagnetic signals, by photographic film, magnetic tape or any other means. Processed data means products resulting from the processing of the primary data, needed to make such data usable while analyzed information means the” information resulting from the interpretation of processed data, inputs of data and knowledge from other sources”.¹³

There is a fourth purpose of remote sensing activities that was included in Principle XI, to ‘promote the protection of mankind from natural disasters’. At present, natural disasters are one of the main remote sensing applications,

11 The Space Millennium: Vienna Declaration on Space and Human Development A/CONF.184/6.

12 <http://www.g77.org>.

13 Monroy, 2010.

due to the importance of obtaining timely satellite data for disaster management.

Principles II and IV reaffirm the content in the Outer Space Treaty, stating that remote sensing activities shall be performed for the benefit and in the interest of all countries. Principle IV refers to the freedom of exploration and use of outer space on the basis of equality. The equality among the countries is part of the argument that supports the access to primary and processed data by all countries, on a 'non-discriminatory basis and on reasonable cost terms'. Principle IV seems to equivocate because it continues "these activities shall be conducted on the basis of respect for the principle of full and permanent sovereignty of all States and peoples over their own wealth and natural resources, with due regard to the rights and interests, in accordance with international law, of other States and entities under their jurisdiction". There has been considerable debate on the extent and scope of this Principle. The meaning of non-discriminatory and reasonable cost terms has generated a lot of consternation in those quarters that argue for free access to data, especially as it concerns their territories. Yet, there have been changes and upheavals in the manner in which Sensing States make remote sensing data available. The genesis of discontentment is reflected in Article IV which declares seemingly contradictory legal postulations, *i.e.* freedom of use on the basis of equality and claim of sovereignty over resources located in one's country.¹⁴

The conclusion on the issue of access to data is contained in Principle VIII and XII. The later says that 'As soon as primary data and the processed data concerning the territory under its jurisdiction are produced, the sensed State shall have access to them on a non discriminatory basis and on reasonable terms'. Principle XII was supported by public and private interests in remote sensing activities, making data accessible and allowing partial cost recovery to maintain the operation of the satellite system. Following the mandate of COPUOS to promote international cooperation in space activities, the 1986 UN Principles elaborated on this theme. There is also the alternative to enter into consultations, as stated in Principle XIII. Principle VII establishes that states performing 'remote sensing activities shall make available technical assistance to other interested States on mutually agreed terms'.

The final version of the 1986 UN Principles considered the standpoint of sensing and sensed states, an achievement of multilateral negotiation. However, since the document adopted was called 'principles' instead of 'treaty', we can notice that some countries did not agree to the creation of a binding document in this domain.

¹⁴ Jakhu, R, *International Law Governing the Acquisition and Dissemination of Satellite Imagery* (2003) Journal of Space Law, vol 34.

IV. Challenges and Solution

The development of space law is encouraged by the advancement of space technology and its applications, but also depends on international relations. However, this is a very special area, in which delegates are very careful in their words when supporting or condemning acts of other countries in outer space, or expressing their positions. We have observed this situation in the Legal Subcommittee. The legal framework governing remote sensing is vague given the genesis of remote sensing application. The dual use of remote sensing technology raises sensitive national security concerns justifying resistance to comprehensive legally binding international instruments. The practical benefits of remote sensing, including, but not limited to, data from places not accessible by conventional means such as steep mountainous areas, the Arctic regions, deep seas. It couples with the ability of satellites to revisit sites of interest regularly. It provides a motive force for the development of policies and legal rules to ensure wider access and use of earth observation data.¹⁵

The 1986 UN Principles on Remote Sensing do not have the status of a binding treaty and are only persuasive in substance. Despite their non-binding character, the 1986 UN Principles have informed and lay the basis for much policy and law in those States that engage in remote sensing activities since today many States offer remote sensing data at cost or free. However, there has emerged recently a trend towards a restrictive approach and interpretation of non-discriminatory access principle. Hence although remote sensed data is available for commercial exploitation by a country other than the sensed State, stringent restrictions are imposed on who gets the data ostensibly on national security concerns.¹⁶

The widespread use of remote sensing data raised concerns and arguments culminating in the adoption of the 1986 UN Principles on Remote Sensing. Remote sensing applications such locating deposits of new mineral and natural resources, effective environmental management, crop management, forestry and urban sprawl management were now pervasive.

After the adoption of the document of 1986 UN Principles the question was how to determine the legal implications of the 1986 UN Principles. In this respect, there are two different opinions. The first some countries specially sensing states imply that the 1986 UN Principles should be considered as voluntary guidelines to be followed on a good faith basis. During the General Assembly of 1986 the United States have made public their interpretation of the legal implications of the 1986 UN Principles. It believed that these Principles can be only recommendatory in character and they cannot possess legal force'. The dominant trend supported by the private space sector, is to

15 Lyall & Larsen, 2009.

16 Diedericks-Vershoor, 2008.

advocate for less regulation and more freedom, with the presumption that ‘everything that is not prohibited is permitted’. However, the freedom of action is limited by the rights of others. The activities performed by a State cannot affect the rights of other States in particular when we refer to outer space.¹⁷

The above interpretation is not acceptable by developing countries, although in fact it is correct. Some countries specially sensed states imply the 1986 UN Principles should be considered as a binding document with the status of international in recent years, the need to improve the effectiveness of the 1986 UN Principles has been an issue supported by the delegation of Brazil and other developing countries at COPUOS. They encouraged the study of remote sensing activities, and with the support of other countries, introduced an agenda item in the Legal Subcommittee to review the 1986 UN Principles and even explore the possibility of converting them into a treaty or these instruments is to be a binding document in a way in the near future. They seek to find a new approach in COPOUS in next year.¹⁸

Some experts agreed to consider the 1986 UN Principles as international custom, which is a source of international space law in accordance with Article 38 (1.b) of the Statute of the ICJ. The 1986 UN Principles were adopted as a soft law document. Nevertheless, the 1986 UN Principles have evolved and become international custom, thanks to the *opinion juris* and the practice of the States. Customary law supporting this opinion is that even though the UN resolutions are not binding documents, the practice of the countries has created one of the elements of international custom. Furthermore, the 1986 UN Principles were adopted by consensus among the then 53 Member States of COPUOS, which could be interpreted as the *opinio juris* of those countries.

Experts have tried to determine whether the Principles have declarative or legal value as a source of law within the figure of international custom. Regarding the legal value, the ILA Report 2006 sums up its position as follows: ‘The prevailing *opinio*, possibly the soundest, is that the principles do reflect, in great measure, international custom. A general practice no doubt exists and psychological element coincidental or otherwise – shows as well’. Consistent with general practice and the new scenario of remote sensing activities, developing countries which are now sensing states, also contribute to the establishment of state practice as evidence, for instance the right to access data stated in Principle XII of the 1986 UN Principles.¹⁹ In other way, bilateral, multilateral and regional agreements on remote sensing activities could resolve the ambiguities that arise out of the 1986 UN

17 Gabrynowicz, 2002.

18 Monroy, 2010.

19 Williams M., Second Report of the ILA’s Space Law Committee (2006) Part I, 72nd ILA Conference, Toronto.

Principles. This is a more feasible option than introducing changes in the 1986 UN Principles through the Legal Subcommittee of COPUOS.

V. Conclusion

There are proposals to change the adopted international space regulations, or to develop the principles into binding documents or to elaborate new regulations for space activities such Relating to Remote Sensing. For example, The 2006 ILA Report indicates that this problem can be solved by entry in force bilateral, regional and multilateral agreements as practical means to interpret gaps and ambiguities within the 1986 UN Principles, as was pointed out earlier in the ILA Report 2004 or adopting a special a separate protocol with the interpretation guidelines. Nevertheless, some believes the main argument against changes to the *status quo* is that everything has been working well in the past and does so now, thus there is no need to change. Behind this argument the main obstacle to overcome seems to be still the 'weakening of the political will' to move international space law forward. This interpretation and argument by some countries is main obstacle in international community in order to find a good solution for binding some space instruments such 1986 UN Principles.

