

LEGAL ASPECTS OF REMOTE SENSING

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Introduction:

The United Nations (UN) Resolution Relating to Remote Sensing of the Earth from Outer Space was adopted by consensus on 3 December 1986¹⁰², which implies that no single state entertained fundamental objections to its content. Especially in the absence of other (binding) instruments regulating the same subject matter, United Nations Resolutions can carry great moral and political weight, as well as nascent legal validity (so-called “soft law” status). Therefore, and in view of their general nature, the legal status of the principles is similar to that of general principles of international law. Indeed, important players in the remote sensing field such as ESA and NOAA made substantial efforts to adhere to the principles contained in the Resolution. On the other hand, Resolutions of the United Nations General Assembly as such are not binding upon states, even upon those having voted in favour or consented. General principles, moreover, do not readily allow for clear-cut application without further ado. In the final analysis, only those principles that reflect already existing customary legal rules — and to the extent that they do not conflict among themselves — might be effectively binding upon states.

Recalling its resolution 3234 (XXIX) of 12 November 1974, in which it recommended that the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space should consider the question of the legal implications of remote sensing of the Earth from space, as well as its resolutions 3388 (XXX) of 18 November 1975, 31/8 of 8 November 1976, 32/196 A of 20 December 1977, 33/16 of 10 November 1978, 34/66 of 5 December 1979, 35/14 of 3 November 1980, 36/35 of 18 November 1981, 37/89 of 10 December 1982, 38/80 of 15 December 1983, 39/96 of 14 December 1984 and 40/162 of 16 December 1985, in which it called for a detailed consideration of the legal implications of remote sensing of the Earth from space, with the aim of formulating draft principles relating to remote sensing, *Having considered* the report of the Committee on the Peaceful Uses of Outer Space on the work of its twenty-ninth session⁶ and the text of the draft principles relating to remote sensing of the Earth from space, annexed thereto, *Noting with satisfaction* that the Committee on the Peaceful Uses of Outer Space, on the basis of the deliberations of its Legal Subcommittee, has endorsed the text of the draft

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¹⁰²<http://www.un.org/documents/ga/res/41/a41r065.htm> (Accessed on 26th April, 2013)

principles relating to remote sensing of the Earth from space, *Believing* that the adoption of the principles relating to remote sensing of the Earth from space will contribute to the strengthening of international cooperation in this field, *Adopts* the principles relating to remote sensing of the Earth from space set forth in the annex to the present resolution.

Principle I

“For the purposes of these principles with respect to remote sensing activities:

(a) The term “remote sensing” means the sensing of the Earth’s surface from space by making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects, for the purpose of improving natural resources management, land use and the protection of the environment;

(b) The term “primary data” means those raw data that are acquired by remote sensors borne by a space object and that 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;

(c) The term “processed data” means the products resulting from the processing of the primary data, needed to make such data usable;

(d) The term “analysed information” means the information resulting from the interpretation of processed data, inputs of data and knowledge from other sources;

(e) The term “remote sensing activities” means the operation of remote sensing space systems, primary data collection and storage stations, and activities in processing, interpreting and disseminating the processed data.”

Firstly, it may be noted that the UN Resolution applies to remote sensing activities “for the purpose of improving natural resources management, land use and the protection of the environment.” Since such usage arguably would not require quality of spatial resolution better than in the range of 10 meters, any VHR issues might fall outside the scope of the Resolution.

Another issue following from this, somewhat narrow, definition of remote sensing for the purposes of the Resolution, is that it might be taken to exclude from its scope any military activities. This, however, is of relatively little importance, since few of the other Principles

contained in the Resolution could carry legal force as well as practical weight when it comes to military and security-related remote sensing activities.

Secondly, the threefold distinction of primary data, processed data, and analysed information is noteworthy. Whether or not this distinction makes sense from a practical and/or particular user's point of view, it obviously has a legal impact. The core activity of creating primary data takes place in outer space, whereas the processing and analysing which defines the two other categories are primarily terrestrial activities (at least so far).

Thirdly, further to the functional scope of the Resolution, subparagraph (e) again makes clear that the Resolution does not restrict itself purely to the space activities involved. Most importantly, the dissemination of processed data, an area of obvious prominence for user issues, is directly subject to the principles contained in the Resolution.

Principle II

“Remote sensing activities shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic, social or scientific and technological development, and taking into particular consideration the needs of the developing countries.”

The very general reference to “the benefit and [...] interests of all countries” with special consideration for the developing countries is of considerable preponderance in international space law treaties and resolutions. In 1996, a United Nations Resolution¹⁰³ specifically dealing with further interpretation and elaboration of this concept, however, left complete freedom to states “to determine all aspects” of such cooperation, further repeatedly referring to the requirement of “an equitable and mutually acceptable basis” for any activities undertaken in its implementation.

The concept therefore at present has little direct relevance for user issues. This would only change if individual states were to draw substantive conclusions from this provision, and domestically implement regulations substantiating *vis-à-vis* disseminators and/ or users the benefit and interest of all or specifically the developing countries.

¹⁰³ Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of all States, Taking into Particular Account the Needs of Developing Countries, UNGA Res. 51/122, of 13 December 1996; XXII-I Annals of Air and Space Law (1997), at 556; 46 Zeitschrift für Luft- und Weltraumrecht (1997), at 236.

Principle III

“Remote sensing activities shall be conducted in accordance with international law, including the Charter of the United Nations, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and the relevant instruments of the International Telecommunication Union.”

This safety-net clause in practice is largely relevant for the space part of remote sensing activities, and hence less important for user issues. This is the consequence of the fact that international law plays its largest role in outer space where no single state can exercise comprehensive — that is territorial — jurisdiction, with the ensuing legal control over activities undertaken there. Terrestrial activities involved in remote sensing are almost by definition directly regulated by individual states; the “safety-net” of general international law would thus be far less called upon to substitute for specific rules of space law which are absent.

Principle IV

“Remote sensing activities shall be conducted in accordance with the principles contained in Article I of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, which, in particular, provides that the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and stipulates the principle of freedom of exploration and use of outer space on the basis of equality. 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. Such activities shall not be conducted in a manner detrimental to the legitimate rights and interests of the sensed State.”

This Principle involves the core issue of satellite remote sensing: the dilemma between the freedom of use of outer space, in its particular manifestation of freedom of information gathering making use of satellites, and the principle of sovereignty of states over their own territory, more in particular over their own wealth and natural resources. These two concepts collide where the “sensed state” finds itself in a situation where a “sensing state” might obtain valuable information, especially in economic terms, with regard to the territory of the “sensed state” which that state itself does not possess.

The main consequences of this Principle for users at the private level are indirect. The duty to protect legitimate interests of “sensed states” might be interpreted and implemented by individual “sensing states” through a restrictive or conditioned dissemination mechanism. On the other side, if users of remote sensing data in the course of such usage violate this Principle, to the extent it could be considered legally binding, it is the state of nationality or territory of operation of such users which will be held accountable at the international level under the principle of state responsibility as restated in Principle XIV.

Principle V

“States carrying out remote sensing activities shall promote international cooperation in these activities. To this end, they shall make available to other States opportunities for participation therein. Such participation shall be based in each case on equitable and mutually acceptable terms.”

This Principle has its relevance almost comprehensively on the public international, “interstate” level. “Duties” such as the one to promote cooperation or allow for participation in remote sensing activities are mainly of concern to states. Only to the extent that such obligations may “trickle down” to private users, e.g. through individual states providing for substantiated legal provisions affecting data dissemination, would this evaluation change.

Principle VI

“In order to maximize the availability of benefits from remote sensing activities, States are encouraged, through agreements or other arrangements, to provide for the establishment and operation of data collecting and storage stations and processing and interpretation facilities, in particular within the framework of regional agreements or arrangements wherever feasible.”

Even though the focus here is directly on data issues, in the first instance essentially the same conclusion applies as regards Principle V. The rather open-ended formulation of the Principle (“are encouraged”; “wherever feasible”), in conjunction with the principle lack of binding force, will not readily result in many states establishing relevant rules on a (private) user-level.

From a policy perspective though, this evaluation should probably take a quite different direction. Actions by states in following up on the suggestions provided by this particular Principle may have considerable consequences for the availability of data, and hence for the

possibilities for disseminating and using them. In other words: any policy destined to enhance dissemination and use of remote sensing data might involve implementing measures following this Principle as a major element.

Principle VII

“States participating in remote sensing activities shall make available technical assistance to other interested States on mutually agreed terms.”

Being little more than an extension of or complement to Principle VI, the same reasoning applies to this Principle, urging the sharing of technical knowledge (in conjunction for example with Principle XIII). It might be reiterated here that “remote sensing activities,” in accordance with Principle I(e), includes data dissemination activities. On the other hand, the reference to “mutually agreed terms” obviously means no specific measure of sharing of technical knowledge needs to result from application of this Principle.

Principle VIII

“The United Nations and the relevant agencies within the United Nations system shall promote international cooperation, including technical assistance and coordination in the area of remote sensing.”

This Principle is even one step further away from the private user-level than the previous ones, in that it sketches the desired measure of involvement of the United Nations system in promoting the aims of the Resolution in rather broad and vague terms. How such a role would work in the particular user-relevant area of data dissemination, as included in the term “remote sensing,” remains to be seen.

Principle IX

“In accordance with Article IV of the Convention on Registration of Objects Launched into Outer Space and Article XI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, a State carrying out a programme of remote sensing shall inform the Secretary-General of the United Nations. It shall, moreover, make available any other relevant information to the greatest extent feasible and practicable to any other State, particularly any developing country that is affected by the programme, at its request.”

The substance of this Principle, though largely relating to a procedural issue, has a potentially important impact on user issues especially as regards the second provision. The terminology used with regard to informing other states (“relevant information”; “to the greatest extent feasible and practicable”) would still leave considerable leeway in applying it, for states that are forced or feel forced to adhere to this Principle.

The core question here is to what extent individual states, in domestically regulating dissemination and usage issues, will impose comparable duties upon disseminators and users to inform other states, thus possibly coming into conflict with industry’s interests in commercial secrets and property rights protection. The provisions are directed at states themselves — although less clearly so on the second issue — but it would seem logical for a state which itself would adhere to this Principle to make its private disseminators and users adhere to it too. After all, a state’s potential international responsibility would remain also for such private players (Article VI, Outer Space Treaty).

Principle X

“Remote sensing shall promote the protection of the Earth’s natural environment. To this end, States participating in remote sensing activities that have identified information in their possession that is capable of averting any phenomenon harmful to the Earth’s natural environment shall disclose such information to States concerned.”

The interesting issue in regard to this particular Principle is its clear moral value which, coupled with general duties of care, international co-operation and respect for benefit and interest of all countries, makes it rather difficult for states *not* to make even private disseminators or users adhere to it. Thus, although directed again at states, and probably even in the absence of explicit obligations on the domestic/private level for disseminators and users, neglecting these provisions in disseminating or using remote sensing data might not be legally excusable any longer.

This would also relate to the question regarding the legal consequences to be attached once the provisions of this Principle are neglected. On that point, the international responsibility of a particular state (or of some states jointly) under Article VI of the Outer Space Treaty and Principle XIV would make that state answerable to other states (e.g. the “sensed state”), while probably trying to derogate any substantive consequences through national legislative means to the relevant private entities.

Principle XI

“Remote sensing shall promote the protection of mankind from natural disasters. To this end, States participating in remote sensing activities that have identified processed data and analysed information in their possession that may be useful to States affected by natural disasters, or likely to be affected by impending natural disasters, shall transmit such data and information to States concerned as promptly as possible.”

Principle XI largely mirrors Principle X, the former dealing with man-originated threats to the natural environment of the Earth, the latter with nature’s threats against mankind.

Consequently, the evaluation of Principle X largely applies here as well; for example, when it comes to the *prima facie* focus on states possessing data, or as regards the vagueness of terminology (“identified,” “may be useful”), from which no conditions for disclosure can readily be distilled. Nevertheless, the obvious moral value of this Principle also calls for care as regards any conclusion on non-binding effects *vis-à-vis* private disseminators or users. One noticeable difference is that Principle XI is more detailed in explicitly applying to “processed data” in addition to “analysed information,” as opposed to mere “information.”

Principle XII

“As soon as the 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 cost terms. The sensed State shall also have access to the available analysed information concerning the territory under its jurisdiction in the possession of any State participating in remote sensing activities on the same basis and terms, taking particularly into account the needs and interests of the developing countries.”

Principle XII is the second Principle dealing with the major dilemma arising from the Resolution, next to Principle IV. No veto exists for the sensed state to prevent it from being “sensed,” nor an exclusive, free, or preferential right of access to the data. Rather, access is to be made available “on a non-discriminatory basis and on reasonable cost terms.” In other words: for the purpose of a particular set of remote sensing data concerning its territory the “sensed state” is no different from any other state interested in such data.

Principle XIII

“To promote and intensify international cooperation, especially with regard to the needs of developing countries, a State carrying out remote sensing of the Earth from space shall, upon request, enter into consultations with a State whose territory is sensed in order to make available opportunities for participation and enhance the mutual benefits to be derived therefrom.”

Principle XIII, further to Principle XII, once again makes clear that there is no preferential treatment of a “sensed state” with regard to the data concerning its territory. If consultations do not lead to a negotiated outcome acceptable to both parties, there would be no “obligation” (to the extent of course that the Resolution is able to impose obligations in the first place) for the “sensing state” to treat the “sensed state” any better than it does other states interested in these data. Furthermore, no conditions *rationetemporae* are provided to which any consultation process should conform. Substantial effects on user issues therefore seem to be remote at this juncture.

Principle XIV

“In compliance with Article VI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, States operating remote sensing satellites shall bear international responsibility for their activities and assure that such activities are conducted in accordance with these principles and the norms of international law, irrespective of whether such activities are carried out by governmental or non-governmental entities or through international organizations to which such States are parties. This principle is without prejudice to the applicability of the norms of international law on State responsibility for remote sensing activities.”

Principle XIV itself states, it also includes non-governmental entities within the scope of the Resolution and the concept of international responsibility. The legitimacy of private involvement in any aspect of space remote sensing activities is thereby confirmed.

The Principle refers explicitly to Article VI of the Outer Space Treaty, and is “without prejudice to the applicability of the norms of international law on State responsibility for remote sensing activities.” Consequently, under this Principle a state should be held responsible on the international level for those private entities undertaking remote sensing activities which either operate from its territory or have its nationality (through incorporation), whose activities are in consequence — for the purpose of the Resolution — equated to that state’s “own” activities.

Principle XV

“Any dispute resulting from the application of these principles shall be resolved through the established procedures for the peaceful settlement of disputes.”

The impact of this Principle on (private) user issues would be quite remote. The whole Resolution being state-oriented, the “established procedures” referred to state-to-state procedures such as diplomatic negotiation, mediation, conciliation, arbitration, and recourse to an international tribunal or court having jurisdiction. These established procedures are the same as those generally provided by international law, *inter alia* as mentioned by the United Nations Charter. For private entities involved in the space part of remote sensing operations, the consequences of this state-oriented dispute settlement mechanism might be quite severe, since it might preclude in many ways solutions to conflicts that are fair to private parties.

THE INDIAN PERSPECTIVE¹⁰⁴

Remote Sensing Data Policy (RSDP)

The aim of the RSDP is to provide remote sensing data to Indian users who are admittedly freely accessing remote sensing data via the internet from foreign and commercial satellite data providers. However, the tedious procedure for acquiring data from NRSC has not encourage the ordinary Indian give up the convenience of accessing high resolution unedited data via the internet, easily, free of cost and on and immediate basis. Clearly, the domestic market remains under served and un-served, resulting in lost opportunities for developing new value added business in remote sensing data. Should the Government decide to commercialise the Indian Remote Sensing (IRS) products sector, it is suggested that the process should not be initiated without legislating appropriate substantive and procedural domestic laws in respect to remote sensing satellites. Commercialising of remote sensing services, data processing and distribution in the future, will undoubtedly raise IPR protection issues among other legal matters. An important question pertains to whether or not ISRO or Private Indian corporation could or should retain jurisdiction over remote sensing data enhanced in a distribution centres and then sold as derived product, e.g. a map. Because copyright does not protect data but

¹⁰⁴ Due to lack of any authoritative work in this area, this point is primarily based on PravinAnand’s pioneering research. See Pravin.Anand, “Indian Experience and Point of View” published in “ESA Workshop Proceedings on Intellectual Property Rights and Space Activities”. Paris, 5-6 December 1994 (ESA SP_378, January 1995), pp. 91-99.

protects only its form of expression, it becomes imperative to define what constitutes protectable expression of remote sensing data. There are also the issues of clarifying and exactly defining terms like unprocessed data and processed data. An appropriate national treatment for the same would serve national security interest. The aforesaid will also be critical in the event that private remote sensing satellite systems are permitted in the future.

New Remote Sensing Data Policy (RSDP) 2011

The Government of India released its much awaited Remote Sensing Data Policy (RSDP-2011) on July 4, 2011, bringing relief to the industry. The new policy does away with restrictions on all remote sensing data up to one meter resolutions, that is, all satellite remote sensing data of resolutions up to 1 m will now be distributed on a non-discriminatory basis and 'on request'. The 2001 policy required data up to 5.8 meter resolution to be protected. Meanwhile, for data better than 1 meter resolution, private agencies need clearance from an interagency High Resolution Image Clearance Committee (HRC). However, government bodies can obtain such data without any further.

The Highlights of the Policy 2011 (RSDP-2011)

Recognising that, Remote Sensing data provides much essential and critical information which is an input for developmental levels, and is also of benefit to society. Nothing that, a large number of users use Remote Sensing data from Indian remote sensing satellites for various developmental applications. Taking into consideration the recent availability of very high-resolution images from foreign and commercial remote sensing satellites is a better need for proper and better management of the data acquisition/distribution from these satellites in India.

The RSDP 2011 containing aforesaid modalities for managing and/or permitting the acquisition/ or dissemination of remote sensing data in support of developmental activities. Department of Space (DOS) of the Government of India shall be the nodal agency for all actions under this policy, unless otherwise stated. The Government, through DOS, will be the sole and exclusive owner of all data collected/ received from IRS. All users will be provided with only a licence to use the said data, and add value to the satellite data. Government reserves the right to impose control over imaging tasks and distribution of data from IRS or any other Indian remote sensing satellite, when it is of the opinion that national security and/or international obligations and/or foreign policies of the Government so required. Any organisation interested in operating a remote sensing satellite from India, will need licence

and/or permission of the Government, through the nodal agency National Remote Sensing Centre (NRSC) for the same. While the national Remote Sensing Centre (NRSC) of ISRO/DOS is vested with the authority to acquire and disseminate all satellite remote sensing data in India, both from Indian and foreign satellites, Antrix Corporation Ltd. (of DOS) will be responsible for grant of license for acquisition/distribution of IRS data outside India. NRSC will maintain a systematic national Remote Sensing Data Archive, and a log of all acquisitions/sales of data for all satellites.¹⁰⁵

Conclusion:

The general limitation of policy is that it is not so much effective during implementation. When any policy will be implemented, there must be some lacuna or violation. But violation of policy is not like violation of law which can be adjudicated in the court of law. All Indian laws are as per the Constitution and this is strictly followed. Hence any violation of law means that of the Constitution. So though the RSDP still exists, but it will not be so effective like law made by the Parliament. Hence any lacuna or violation of RSDP has no such legal effect in the court of law.¹⁰⁶

¹⁰⁵Remote Sensing Data Policy (RSDP-2011), http://www.isro.org/news/pdf/RSDP_2011.pdf (Accessed on Feb 10th, 2012).

¹⁰⁶ MalayAdhikari., “ *Remote Sensing: An Analysis of Policy and Law with Reference to India*” <http://www.indiagespatialforum.org/2012/.../ppt/Malay%20Adhikari.pdf> (Accessed on April 29, 2013)