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SECURITY IMPLICATIONS OF HIGH QUALITY REMOTE SENSING IMAGERY

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ABSTRACT

Although the new generation of commercial observation satellites is primarily focused on commercial markets and civilian applications, they are a dual-use technology with national security implications.

Most providers of remotely sensed data adhere to non-discriminatory data policy, providing data to all data users regardless of country of origin, as called for in the United Nations Principles on Remote Sensing. In times of conflict, however, some countries reserve the right to prohibit distribution of Earth observation data to adversaries.

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Very high quality remote sensing systems illustrate a general weakness of international law - namely, that licensing of space activities is purely a national prerogative within the limits of international law and space law remote sensing principles, but the impact of these (national) license policies on the international level can have serious repercussions. In view of this, discussion of space, security and dual use technology could require a new global approach and new institutional arrangements.

The 1986 UN Principles

In 1986, the United Nations General Assembly (UNGA) adopted Resolution 41/65 on "Principles Relating to remote Sensing of the Earth from Space". The principles are non-binding[1], not applicable to military activities, and not applicable to meteorological activities.

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The goals of the Principles include that remote sensing activities be carried out for the benefit and in the interests of all countries (Principle II), improvement of national resource management, land use and protection of the environment (Principle I), promote the protection of the Earth's natural environment (Principle X), and protection against natural disasters (Principle XI).

States shall make available to other States opportunities to participate on equitable and mutually acceptable terms (Principle V). No prior consent is required from the sensed State, thus freedom of observation can be implicitly derived from Principle XIII. 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 same applies for analyzed information (Principle XII).

In accordance with Article VI of the Outer Space Treaty, States operating remote sensing satellites shall bear international responsibility for their activities and those of their private entities.

Data Policies

Every country, every organization, every firm has a unique data policy. In the United States (US), all government data are available for free or at the cost of reproduction . In France, SPOT offers market prices for commercial sales. Licenses for specific users are granted and discounts given for large volume.

With respect to US commercial remote sensing suppliers, until 1994, US practice was that no data was to be commercially distributed with a higher resolution than 10 meters (SPOT data up to 5 meters). In 1995, the Clinton administration changed this policy to allow remote sensing systems with 1 meter resolution. This decision involved major policy issues, notably approval by the US Government of all encryption devices, shutter control during times of conflict or when national security of international obligations and /or foreign policies may be compromised, as defined by the Secretary of Defense or the Secretary of State, and, notification by US companies to the US Government of "intent to enter into significant or substantial agreements with new foreign customers".

Data is sold at market prices. US commercial suppliers make data available to sensed countries at "reasonable terms and conditions". Other than restrictions described above, there are no restrictions on data sales except for data over Israel [2] and so-called "rogue countries".

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In Canada, commercial sales of Radarsat I data is carried out through Radarsat International, while a new data policy for Radarsat II is being finalized.[3]

In India, commercial sales of remote sensing imagery is handled by Space Imaging. It is worthy of note that last year the Indian state of Andhra Pradesh attempted to purchase data directly from the commercial supplier, the central government objected. Examples such as this and the Israel exemption raise the question Who controls the data?

Space and Security: Where should they be discussed?

Option 1

Increasingly , governments (particularly the US) are dependent on the commercial space sector to provide essential services for national security purposes. Thus, national security aspects and export control restrictions are both the same aspect of an overall national policy in terms of a country's approach to space.

In view of the intrinsic dual-use nature of space technology and the growing interrelationship between commercial space activities and players on the one hand, and military activities on the other hand, one option would be for discussions pertaining to space and security to be initiated within the G-8. Advantages of such an approach would include having input at the very start of discussions into the question of regulations of dual-use technology, from players in the commercial side of space activities.

It is suggested that the Group of Eight (G-8) could act as a vehicle to advance issues of space and security. A Working Group or Panel of Experts could be set up to discuss a wide range of issues such as , *inter alia*, technology transfer controls, space-related incentives such as providing launching services at favorable prices, and issues pertaining to high resolution satellite imagery. This would satisfy those countries who favor discussions in a more restricted arena, yet involve key players in this field.

Nothing would prevent the group of experts from inviting individuals from non-member G-8 countries but with a particular interest in the topic. Invited countries could include China, India and Brazil, amongst others. This was in fact how the Committee on Earth Observation Satellites (CEOS) was originally created. It was created in 1984 in response to a recommendation from the Panel of Experts on remote sensing from space, under the aegis of the Economic Summit of Industrialized Nations Working Group on Growth, Technology and Employment.

CEOS' goals are: (1) to optimize the benefits derived from space-based remote sensing through the cooperation of its members to provide services, policies, and products; (2) to provide assistance to members and users by acting as a focal point for the coordination of space-based remote sensing; and (3) to promote the exchange of technical information in order to encourage the compatibility of space-based remote sensing satellites.[4]

Since its inception, CEOS membership has grown to encompass *all* the world's civil agencies responsible for Earth observation satellite programs, along with agencies that receive and process data.. Some user organizations are also members. Thus, a more limited group of players having direct

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involvement in remote sensing are adopting international principles applicable to remote sensing and abiding by them Because all countries with a special interest are involved, norms of international law applicable to remote sensing can evolve through State practice.

The G-8 option also offers another important advantage. Space systems and their utilization are becoming more closely integrated in a much broader political and economic strategy. Thus formulating space strategy is the task of institutions responsible for mapping out political and economic strategy. Inclusion of China, India and Brazil assures equitable geographic representation of countries with active space programs.

Option 2

An other alternative would be to create a new Group of Eleven (G11). In addition to the G-8, member countries would also include China, India and Brazil. A similar approach was recently adopted when the Group of Twenty (G20) was created in 1999,[5] "as a new mechanism for informal dialogue in the framework of the Bretton Woods institutional system, to broaden the dialogue on key economic and financial policy issues among systemically significant economies and to promote cooperation to achieve stable and sustainable world growth that benefits all".

[1] For arguments supporting the view that the Principles are now part of customary law due to State practice see, Gabrynowicz, J. I., " Expanding Global Remote Sesnsing Services: Three Fundamental Considerations", in Proceedings of the Workshop on Space Law in the Twenty-first Century , UNISPACE III Technical Forum, United Nations, New York, 2000 (Doc. ST/SPACE/2), 95-128, at 103..

[2] Rep. No. 104-278, 104th Cong., 2d Session, S. 1745, National Defense Authorization Act for Fiscal Year 1997. Section 1044 PROHIBITION ON COLLECTION AND RELEASE OD DETAILED SATELLITE IMAGERY RELATING TO ISRAEL AND OTHER COUNTRIES AND AREAS

[3] See, Bourbonniere, M. and Haeck, L., "Canada's Remote Sensing Program and Policies" in, Baker, J.C., O'Connell, K.M. and Williamson, R. (eds) Commercial Observation Satellites: at the leading edge of global transparency , RAND and ASPRS Publishers, 2001, 263-294.

[4] See http://www.ceos.org

[5] G20 Meetings and related Documents, http://www.g7.utoronto.ca