# REMOTE SENSING AND NATIONAL SECURITY

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Abstract

Enemies in time of armed conflict have particular need for information relating to the disposition of opposing forces. Potential adversaries also benefit from the acquisition of information.

Remote sensing (RS) is carried out by States and by commercial firms. Countries impose constraints upon those who are subject to their jurisdiction so that sensitive data and analyzed information will not be available to their opponents. Constraints will also be imposed by States in order to provide protection to their political and military allies.

Sensitive policy issues exist when a space-resource State wishes to encourage the success of its commercial firms but at the same time considers it prudent to restrict sales. In forming policies a State will have to take into account the availability of data and information that can be supplied by non-national sources.

This analysis examines the policies and practices affecting the United States, its allies, and the enemies or potential adversaries of both.



## 1. Hybrid Capabilities

The data and analyzed information derived form RS contributes to commercial profitability and military efficiency. RS, with its hybrid uses, is a successful product of the space age. Its multi-faceted aspects have presented problems to all who share an interest in its use.

## 2. Commercial Aspects

Initially, because of the high cost of satellites and aircraft, only governments were able to engage effectively in RS. More recently the United States has fostered RS by private firms using satellites.

The Commercial Space Act of 1998 (P.L. 105-303) established policies whereby the U.S. government is to encourage commercial RS by not engaging in activities being pursued by the private sector and also to purchase data from commercial sources.

Until 1997 NASA was heavily engaged in commercial RS activities. Because the raw data and interpreted information derived from RS vitally affects national security, restrictions on private

operations are substantial. Such activity must not, for example, jeopardize the "domestic national security, and foreign policy interests of the United States."

Within these limitations private firms whose clients are engaged in many commercial and scientific endeavors, have demonstrated their economic worth. Agriculture, fishing, mining, transportation, and weather forecasting are among the beneficiaries. The product of RS has contributed to the condition of globalization.

Consumers of the produce of RS can be either domestic or foreign. In each instance governments in imposing constraints on the sale of sensitive materials limit the consumer base of the product. In safeguarding national security by preventing sensitive materiel from being sold to potential adversaries, the private firms operate under economic handicaps. This can be stressful for a capital-intensive industry. One way this has been overcome is for the parent State to purchase both commercial and military products from its own private firms. To maintain national security against overly inquisitive foreign purchasers RS licensing procedures have been installed and regulatory bodies have been established. On occasion several agencies, viewing commercial and security needs from different perspectives, have promulgated opposing directives.

United States policy on RS has been heavily influenced by the Presidential decision Directive 23 (PDD-23) of March 10, 1994. As a classified document it defined national objectives for RS commercialization. It also identified the circumstances under which foreign access to RS space capabilities was to be permitted. The directive was accompanied by a Press Statement and a Fact Sheet. The latter identified commercial opportunities and the importance of environmental monitoring. The directive adopted the premise there would be a world-wide market for RS and its applications of $15 billion annually by 2000.

The Fact Sheet acknowledged the presence of competing considerations. While American policy posited support for and the enhancement of U.S. industrial competitiveness in RS it also noted the need to protect America's security and foreign policy interests. So that the latter would not suffer through foreign access to RS space systems, technology, products, and data the directive made reference to commercial and export licenses. The export of items on control lists was to be subject to existing laws and regulations. The restrictions under which American firms might engage in the international commercial aspect of RS were numerous and detailed. The Fact Sheet made it clear that when security considerations were present they would prevail over commercial interests. For particularly sensitive "know how" exportation was to be on a case-by-case basis and subject to "inter-governmental" agreements.

Failure to conform to existing governmental regulations has produced sanctions. In December 2002 in a case not involving RS two American exporters of satellites were charged with violations of the Arms Export Control Act and the International Traffic in Arms Regulations. In March 2003 the Boeing Company and Hughes Electronics Corporation entered into an agreement with the government to pay the Department of State $20 million in cash plus an additional $12 million to improve their international export compliance programs. These charges resulted from the failure of the two companies in the mid-

1990s to restrict their sale of sensitive space technology to China. This technology improved China's capability to develop ballistic missiles.

3. Military Aspects

At present the United States Department of Defense operates two agencies which engage in security-based RS activities. The National Reconnaissance Office (NRO) was created in 1960. It is charged with furthering unique and innovative technology, large-scale development and acquisition, and the operation of space reconnaissance systems. Its functions are based on the view that national security involves more than military data and information. Included in its mission are such areas as energy, the environment, and economic competition. Its military successes have included tracking the world-wide shipment of arms and implements of war, establishing proof that there was not a "missile gap" between the United States and the Soviet Union during the Cold War, and the recent provision of intelligence support to U.S. operations in Bosnia in 2001 and in Iraq in 2003. High on its agenda is the identification of nuclear capabilities by potential adversaries of the United States.

The second agency is the National Imagery and Mapping Agency (NIMA), which was established in 1996. It is a major intelligence and combat support instrumentality of the Department of Defense. It is charged with providing accurate geospatial intelligence derived from the exploitation and analysis of imagery and geospatial information describing and visually depicting physical feature geographically referenced activities on the Earth. This enables the United States to formulate security policy, and to engage in arms control and treaty monitoring activities, counterterrorism activities, nonproliferation, chemical and biological warfare activities, and operational activities.

NIMA following September 11, 2001 contracted with the American firm, Space Imaging Corporation, to provide data and information on Afghanistan. The agreement provided that the seller could not sell or share its imagery with anyone other than the U.S. government until January 5, 2002. This has been referred to as "checkbook shutter control." Shutter control exists when sensing devices are turned off thereby restricting the collection and dissemination of data.

NIMA subsequently entered into a similar agreement with Digital Globe Corporation for data and information. The combined cost was more than $100 million. NIMA also provided major support for the U.S. led war against Iraq in 2003.

4. Conclusion

A great stride was taken on December 3, 1986 when the U.N General Assembly adopted Resolution 41/65 entitled "Principles Relating to Remote Sensing of the Earth from Outer Space." Today it is recognized that foreign RC is an every day practice, and is not contrary to international law although some sensed States have complained that such activities are violative of their sovereign "right of privacy." At the same time a State is able to invoke its sovereign right of self-defense in order to forestall grave harms to it resulting from foreign activities. To alleviate concerns respecting the purpose or purposes for which a State engages in RS those countries which believe that they are either actually or prospectively experiencing detriment should insist on compliance with Article IV of the

1976 Convention on Objects Launched into Outer Space. It calls for launching countries to report on the "general function of the space object."

There are two basic threats to RS systems. The first is the possibility that governmentally acquired sensitive data and information will fall into the hands of an adversary or that competing private commercial systems will make such items available to an adversary. The second is the possibility of an incapacitating military attack on national space systems.

These concerns are reflected in the January 2001 report of the Commission to Assess United States National Security Space Management and Organization. This body known as the Space Commission was chaired by Donald Rumsfeld prior to his becoming Secretary of Defense. The Committee warned that adversaries could cause havoc by attacking satellites in space, communication links, and ground stations. It urged that steps be taken "to deter and to defend against hostile acts in and from space." The creation of superior space capabilities was recommended. Guerrilla warfare of the kind facing coalition forces in Iraq in 2003 has emphasized the need to protect communication facilities.

Both broad coverage and limited coverage space systems, with the former being dedicated to combat conditions and general violence, and the later designed to identify natural resources, can respond to the world-wide presence of militant terrorists and the ongoing development of weapons of mass destruction. Both aspects of RS, commercial and military, can assist in controlling such threats. In time of crisis the former can augment the capabilities of the latter.

The need by a country for ready and accurate access to the product of RS depends on its foreign policy commitments. The security aspects of RS have to be examined in a broader context than the availability of a foreign product to an American adversary or of an American product to such an opponent. It must also be seen in the light of availability of such data and information to a friend or ally of the United States.

For those States, which either by default or design, have been called upon to lead in the search for international peace and security, there is a manifest benefit to be obtained through the promotion of commercial and military efficiency in RS. A farseeing national space policy should encourage commercial RS not only for the benefits derived from it but also to supplement national military resources when national security is under challenge.

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