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Legal challenges to Earth observation programs with particular emphasis on developing countries (5.)

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A LEGAL STRATEGY FOR THE APPLICATION OF EARTH OBSERVATION PROGRAMS IN CENTRAL AND SOUTH AMERICAN COUNTRIES.

1. Abstract:

This paper analyses the factors that may impede the development of coordinated earth observation programs in the countries of Central and South America and advocates the creation of a legal strategy which can open the way for bilateral, multilateral and regional agreements on the subject.

With the exception of Brazil, the development and application of space technology in Latin America has been slow and has not reflected the capacity of the countries in the region. As a result, the benefits have not been felt by the average citizen. Among the main factors hindering the development of earth observation programs are the limited financial resources, the almost total lack of implementation of regional agreements, the insufficient regulation of space observation of the national territory at country level, and the lack of legislation concerning public and private programs and their commercial exploitation. eg. It is argued that the money spent on the preparatory meetings to discuss budgets, logistics, strategy and sponsorship for the construction of the communications satellite in the Andean Region in the 1980s and 1990s would have been enough to set up a stable earth observation program in the region. (This project was never implemented)

We propose a legal strategy that covers these programs and allows their execution in an efficient, productive manner. Laws should be a means to an end, and not an end in themselves. Finally, the creation of stable channels of cooperation between Latin American countries is vital to the development of more ambitious programs for earth observation in the region.

2. Factors to consider:

As a first step we should consider the region's commitment to research and development (R&D), since Earth Observation (EO) programs fall almost entirely within this context. Unfortunately, public spending on R&D in the Latin American region is way below the average for most industrialized countries. A few Latin American countries stand out, but in general the level of investment is very low, which makes it even more difficult to obtain resources and run programs, or even to promote agreements and the creation of EO legislations. The only real exception in the region is Brazil, which has increased its R&D spending in the last decade to 1.0% of GDP, but other countries lag far behind: R&D spending amounts to 0.6% in Chile, 0.5% in Argentina, and only 0.05% in Guatemala and Honduras, in stark contrast to the figures of 2.5% in the US and 1.8% in Canada.(1)

Another factor to consider is the

absence of agreements at regional level to govern the field of EO. All the initiatives have come from outside, either via international agencies or from the countries that possess this technology and have an interest in providing tools to the Latin American region. Most of these efforts are organized by the Group on Earth Observations (GEO) in the form of the GEOSS,(2) a system promoted by the G-8 and comprising more than 50 countries from all over the world. But initiatives from inside the countries are few and far between: the only ones worthy of mention are the bilateral agreements between Brazil and China and Croatia,(3) Argentina's agreements with France for technical cooperation in earth observation and with the US for space missions,(4) and Colombia's development of a space policy, which including the signing of agreements concerning EO with other nations. But another group of countries are slowly falling behind, and this is a matter of concern.

In general, domestic legislation on EO in the region is limited. The fact that countries such as Brazil, Argentina, Chile and Colombia have public policies on outer space and a more consolidated legal structure only draws attention to the disparities in the region. However, interest in regulating this area in the domestic sphere is growing; last August a bill was presented to Congress in Peru to formulate a national plan on satellite development,(5) and Colombia is already exploring the legal changes necessary to incorporate EO in its domestic legislation in order to ensure the sustained development of the sector.(6)

Finally, we must consider the political situation in the region which is to some extent divided by the presence of two rival ideological currents. In our view, nations such as Venezuela and Bolivia have decided to promote space development as an ideological instrument (recalling the times of the Cold War). With questionable timing, these nations have engaged in space activities by hiring and purchasing satellites from other nations, for the provision of communications and Earth observation.

3. Obstacles to the development of Earth observation programs in Latin America:

- Lack of resources:

Resource availability is a decisive factor in science and technology programs. As we have seen, Latin American investment in R&D is well below the average for developed countries. This means that projects in many different areas and programs (biotechnology, medicine, telecommunications, Earth observation, agriculture, and so on) have to compete for, or share out, the existing resources, a situation that prevents them from developing sustainable, long-term programs. However, with regard to the development of programs for Earth Observation in the region, problems of resource availability do not have the same impact in all countries. Funds for permanent EO programs, that is for the development of satellites, have been earmarked in Brazil and Argentina, and Colombia and Peru are also setting aside resources for the same purpose. We believe that the increase in funding for EO has been largely due to increased national interest, which has allowed governments to focus more closely on the topic and allocate more resources. But why is EO becoming an important policy issue on national agendas?

- EO on the national agendas of individual countries:

We believe that the emergence of EO is due to the conjunction of a variety of factors. The first is climate change and its impact on overcrowding worldwide. The understanding of the dangers of climate change has drawn attention to the usefulness of EO systems for mitigating its effect; the more climate change becomes a national concern in a country, the greater the need to implement the tools to combat it. The second is the international program of cooperation in EO, which has generated a better understanding within some regional governments of the usefulness of these systems in disaster prevention, analysis of soils for agriculture, and improving national mapping. Good examples are the GEOSS and REMSAT ESA programs(7), which having heightened the awareness of the value of EO in these countries. Third, the international efforts led by the UN through the Space Conferences of the Americas have drawn attention to the issue in the region and EO has become a matter of importance at government level. An increase in the number of specialist groups at national level has also been observed. The fourth factor is the notable improvement in the regional economy in the last decade, which has allowed more room for investment in projects of this kind. The awakening of Brazil, the world's tenth economy, Argentina's recovery, sustained growth in Colombia in recent years and oil from Venezuela have provided a certain room to maneuver, although of course the current global recession may have a negative effect. Finally, we should note the emphasis that some countries in the region now place on their strategic position, their keenness to demonstrate their technological capability and their determination to be considered as equals by the most powerful countries in the world. The development of space technology may turn out to be a useful instrument for this purpose. And what about other countries? This is a matter for concern. EO as yet does not have a place on the public agenda of many other Latin American nations, either because their governments have not seen the need for it, or simply lack the financial and technical resources to make the leap.

- The lack of bilateral agreements at regional level.

In spite of the dangers of making divisions, we tentatively present two groups of Latin American countries divided in terms of their involvement in EO. The first group have already implemented EO or are implementing programs to use the technology; it comprises Brazil, Argentina, Colombia, Chile, Venezuela, Mexico and Peru, and countries like Bolivia, Uruguay and Paraguay, although the position of these countries regarding EO is not entirely clear. The second group, which comprises countries like Haiti, Honduras and El Salvador, do not even consider the possibility of implementing EO, either for budgetary or technical reasons, or simply due to a lack of awareness of the issue. These countries are increasingly falling behind the rest of the region and are in urgent need of agreements at regional level if EO is to be introduced. A policy that involves not only seeking international agreements with European countries, the US and China, but also promoting regional agreements between Latin American countries would serve as an interim step to help the less developed countries to engage in the process of developing EO, in spite of their limited resources.

- The failure to implement existing laws to promote and stimulate the development of national Earth Observation. (At public and private level):

Another obstacle to the development of these programs is the lack of legislation. Efforts at national level to include regulations relating to outer space are only just beginning, and the lack of clarity on the issue means that governments do not know very well where to begin and where they can operate, or, in the case of Colombia, even if national legislation permits geostationary orbit. Added to this is the fact that the drafting and passing of legislation always represents a commitment for politicians which not many are willing to assume. Ignorance leads to the waste of the available resources, such as the legislation on transport, ecology, land allocation, forest protection, development of R & D, territorial waters, promotion of private enterprise, among others; if interpreted correctly, these laws could form the basis of the development of EO policies and programs. In countries with positive law systems, laws are not usually applied beyond their sphere of influence, in contrast to the situation in customary law which allows a broader interpretation of law. This means that in positive law systems very specific laws are required for each case (that is, a constant legitimization of state action).

4. One possible strategy:

Bringing together the factors we have been discussing, we consider that the first step in a legal strategy to promote EO programs in Latin America must involve:

- Promotion of Earth Observation in the public agenda of the countries in question, by persuading the political classes of the benefits of this technology. Support from foreign agencies is essential, for questions of image. The establishment of groups of experts to promote the issue is of vital importance in transmitting the message to decision-making groups.

- The pursuit of economic resources. As part of a legal strategy, raising the profile of EO in the national interests of a country may go some way towards securing resources for programs; if the resources are still insufficient, efforts should be made to achieve a higher percentage of the quota allocated for R&D, citing the wide range of areas in which EO serves as a development tool, such as medicine, botany, agriculture, environmental protection and disaster prevention. The private sector is another important source of funding; in this case it would extend the range to the international arena in the medium term, but in the initial stages public support seems vital.

- Another point to consider is the creation of regional support through bilateral agreements. Countries that are already engaged in EO development might come to the aid of those that are not. Brazil or Argentina, for example, might support the initial development for the application of this technology in many smaller countries such as Haiti (which has an alarming problem of deforestation). This could be used as a platform for achieving greater equality in the region.

- The compilation and implementation of the existing national legislation is vital for these countries. Environmental protection laws and the need to protect the countryside, to name just two examples, are in place in almost all these countries and, using a broad interpretation of this legislation, can

obtain the legal instruments necessary to develop these programs further. This does not mean that new specialized legislation is not needed, only that the current absence of legislation should not be a deterrent to the development of EO programs. In most cases, laws are made after a sector has emerged, and not the other way round: they are a consequence of the needs that have emerged in practice.

- More than six countries are currently involved in EO programs and are allocating resources to this technology. However, the development of EO programs in Latin America needs protection in order ensure its future development; any change in government or an economic recession can roll back the achievements made by these nations and plunge others further into indifference. It is therefore important to involve private industry, to be gradually creating an industrial structure that supports the environment, as well as raising awareness of the importance of these programs through the information society. Achieving a synergy with public agencies as the engine, private industry as the accelerator and society as the gasoline can push the EO vehicle forwards.

Finally, we should stress that further study of the area is clearly required. We intend to carry out a specific study of a single Latin American country and will analyse ways of creating incentives for developing legal channels for EO.

5. References:

(1) CEPAL. Comisión Económica para América Latina y el Caribe. www.eclac.org

(2) GEO. Global Earth Observations. www.earthobservations.org

(3) Agencia Espacial Brasileira. www.aeb.gov.br

(4) CONAE. Comisión Nacional de Actividades Espaciales. http://www.conae.gov.ar/

(5) Proyecto de Ley N° 03434/2009-CR, que Declara de Necesidad Pública e Interés Nacional la Formulación de un Plan Nacional de Desarrollo Satelital.

(6) Comisión Colombiana del Espacio, Grupo de Observación de la Tierra. www.cce.gov.co

(7) European Space Agency. www.esa.int