

SPACE POLICY – WHAT IS IT AND WHY DO EMERGING SPACE STATES NEED IT?

Agnieszka Lukaszczyk

Secure World Foundation (SWF)

alukaszczyk@swfound.org

ABSTRACT

In the past decade, the number of space faring states increased from 27 to 39 and there are more on the horizon that aspire to become players in the space arena. Space activities are no longer exclusive to the big players (USA, Russia, China), as it has become apparent that space technology can benefit humanity in various areas such as health care, education, disaster management, food security, water management, and navigation - just to name a few. All regions of the world, including Africa, use space application to positively impact the lives of their citizens; however, to avoid *ad hoc* activities and assure responsible uses of outer space, proper policies and regulations need to be put into place.

This paper outlines the current situation in the space sector by examining the present actors - States and the private sector, and their relationship to one another. It will also look at the current international regime including the space treaties, various national space policies, and strategies. Most important, this paper will demonstrate that, to assure the long term sustainability of outer space and most benefits of space technologies to humanity, States must work towards the development of national space policies.

THE VALUE OF SPACE:SHIFT OF THE PARADIGM

For quite some time space, was reserved only to wealthy, developed countries such as the United States, Soviet Union/Russia, and, to some extent, Europe. In recent years, however, the number of space faring States has rapidly increased to 39 as of today. Not only the developed world is participating in space activities. A variety of developing countries such as Mexico, Malaysia, Nigeria, South Africa, and more, continue to develop space programs. Many developing states have their own satellites in space, while countries like China,

India, and Brazil do not only operate satellites but already have working launch capabilities. Space programs and other related technologies are now becoming part of the national strategies and policies of many emerging space states, which strive to strengthen their international status, security, and economic benefits.

It is important to note that the increasing number of space actors includes the private sector. Communications, Earth observation, geospatial information, and many other space applications affect modern life all over the globe, as well as provide relevant information to governments and various institutions in such areas as climate monitoring, disaster/crisis management, food security,

water management, Earth observation, and tele-medicine.

The growing importance of space policy is at odds with the perception of the general public when it comes to the importance of space in today's society. Even after the launch of Sputnik, the ISS, Moon landings, and various human and robotic space missions, relatively few people are aware of the benefits of space technology today. During the Cold War, space was a somewhat "hot topic" with such glamorous achievements of launching the first satellite, putting the first man in space, landing on the Moon, and preventing Star Wars. The space sector of today is focused more on science and technology, which have greatly enhanced human life, but which have not produced much in the way of newsworthy excitement. Although space benefits are very much integrated into our daily life, most people do not give them a second thought.

Threats and accomplishments also seem to be of a different nature now than they were during the Cold War. In February of 2007, China successfully tested an anti-satellite ballistic missile, which came as a shock to the international community. By shooting down one of its own satellites from low-Earth orbit (LEO), China – a country that has a majority population still living under the poverty line – demonstrated that it is, indeed, a space power. In 2008, India successfully launched its own probe to the Moon. Around the globe, increasing numbers of developing countries have begun to invest in space technologies, to partner in various space projects, and to build their own satellites.

All things considered,, why are developing countries, which, by definition, are not financially stable, willing to invest in space activities? There are several reasons - for example, international recognition and the prestige of being part of the space club. Plus, space tools can enhance the life and safety of the citizens at large. The benefits of a successful space program include telecommunications, Position, Navigation, and Timing (PNT), Earth Observation, and various military applications. Hence, developing countries are simply being

rational actors who want to play an active role on the international stage.

THE THREAT

Since space does not belong to anyone everyone should have an access to it and it should be used for the benefit of all mankind. At the beginning of the Space Age, this notion was only theoretical as in reality very few could access space and benefit from it. However, as mentioned earlier, in recent years more and more actors of different kind engage in space activities. Currently there are attempts to not only utilize space for military or scientific reasons but also purely for leisure purposes. Space tourism has been on the agenda for some years and is slowly becoming a reality.

On one hand it is exciting that space is finally becoming relatively reachable for more and more people, companies, and states. On the other hand, there are costs with the benefits that should not be neglected, as they bring many potential threats. There is an increased need to guarantee sustainability of space activities. More actors translate into increased crowding in key orbits as well as an increased amount of debris in space.

Raising awareness of benefits of space activities is very important; however, developing countries should not just be encouraged to participate in space activities; they should also be educated on how to become responsible actors. Capacity building is crucial, because in the unique environment of space, a mistake of one actor affects all actors. A piece of debris 10cm or larger can destroy or seriously damage a satellite. Potential consequences can be hazardous and very expensive; thus, it is in everyone's interest that new space players have a good understanding of the space environment, and have proper policies in place.

THE AFRICAN EXPERIENCE

Besides South Africa, only Nigeria, Kenya, Algeria, Egypt and Tunisia have been developing space programs. In the Egyptian case, space activities have been largely concentrated on security concerns. For the other African states, however, socioeconomic benefits have been the main focus. Space technology has been considered by the public and private sectors in Africa as a potential enhancing factor in long term development, despite the high cost. Even in relatively poor African countries on the continent, space applications increasingly play a part in various development and security schemes.

Telecommunication and GNSS are progressively becoming standard tools of trade to help isolated communities become better integrated with the rest of the society. Maps and images of various areas put incredibly important tools in the hands of local authorities for disaster and crisis management, as well as food security, water management, human rights and more.

Regional cooperation is slowly gaining importance in Africa as a mechanism for states to engage in a variety of activities that support the growth of technology, infrastructure, industry, and culture that promote space activities. Sharing costs, resources, and capabilities can allow countries to achieve more together than they would alone. In 1991, Article 63 of the Abuja Treaty committed the African Union to the establishment of a Pan-African satellite communication system, setting the stage for an official intergovernmental forum on space cooperation. The treaty was co-sponsored by the Algerian Space Agency and the United Nations Office for Outer Space Affairs (UNOOSA). The African leadership Conference on Space Science and Technology for Sustainable Development was to accomplish the same goals as Asia-Pacific Regional Space Agency Forum (APRSAF). Nigeria, Algeria, Kenya, and South Africa have used this forum to come to an agreement on the uses of space technologies for disaster management,

resource identification, land use, and public health¹.

SPACE POLICY DEVELOPMENT

For success today, space activities require public and private long term funding and a clear focus on policy goals. There must be a political will to have a national space program as investment in space systems is largely a governmental activity. Governments are willing to invest in programs that translate into a public good such as national security, crisis management, weather forecasting, disaster management, and natural resource management. Today, however, more and more space programs are set up as government partnerships with the private sector, academia, and other states to maximize the outcomes while sharing costs.

It is important to realize that creating a space agency is not sufficient to guarantee a good space program. A space agency, as any other governmental agency, will need a policy or a group of policies to guide its activities and to shape the evolution of the national space program. Without a formal policy, activities tend to develop in an *ad hoc* manner among various national agencies, each with some space component, and my lack coherence and long term sustainability. A well-structured policy can assist building of a strong space program as well as it can foster sustainable development through science and technology education and technology development.

All space activities are funded by different groups, whether public or private; thus, it is important to realize that each group will have different understandings of risk and different expectations of reward. The private sector can - and should - be a major partner in

¹ Keith Gottschalk, "The Roles of Africa's Institutions in Ensuring Africa's Active participation in the Space Enterprise: The Case for an African Space Agency (ASA)," *African Skies*, No.12, October 2008:26.

executing space policy. The policy challenge is to establish the right balance between the levels of investment in publicly funded space activities. The key is to avoid *ad hoc* policy making, because it might result in regulatory and political inconsistencies and might create industry uncertainty.

Tensions between government promotion of certain public good activities for long term societal benefits and market forces that promote short- to- medium-term government decisions should be expected. In addition, governments are generally not very good in “picking winners” and can waste considerable taxpayer money on dead-end projects. Generally, governments have more success with funding more basic and generic research.

There are certain actions governments can take to assist industry. Public policy should, of course, confront issues of public safety, resource allocation, environmental protection, and technology transfer. Nevertheless, it can help to reduce market risks through targeted research and development (R&D) programs for key technologies, supportive regulatory environment, low interest loans and loan guarantees, direct subsidies, and liability indemnification. There also should be an improved return on investments through strategies such as tax relief for risky investments, patent licensing, provision of infrastructure, and guaranteed government contracts.

As mentioned earlier, the public is, in general, poorly informed about the benefits of space technology and the value of investing in space technologies. Consequently, it is important to invest in public awareness programs about the value of space activities for individual and collective welfare. Also, engagement with space related NGOs such as the Space Generation Advisory Council, World Space Week, and the Planetary Society can play a significant role in building awareness.

An increased number of space actors means greater opportunities for international cooperation. Working with partners creates the

potential for expanding capacity beyond the capabilities of any one country. International forum such as the UN Committee on the Peaceful Uses of Outer Space (COPUOS), Global Earth Observation System of Systems (GEOSS), and the International Committee for GNSS (ICG), also assist capacity building and international cooperation. Regional forums promote strengthening regional space capabilities. Sharing costs and maximizing benefits is a win for all.

CONCLUSION

Presently, many states depend on various space based assets from communications and navigation, to weather forecasting, high-resolution imagery and more. For developed and developing countries alike, the decision to invest in national space policy has been predicated not only on obtaining various technological advances but also on address national security needs.

To some extent, the emerging space states have been following the pattern developed by the space powers – to demonstrate national capacity, gain international prestige, improve national security, and promote socio-economic development. Since Sputnik, space activities have often been a symbol of national pride, as well as visible way to demonstrate technical expertise and possession of resources. Thus, many countries engage in limited but focused space programs to address their specific needs, whether it be security, prestige, or space benefits for the citizenry. Many developing countries, which are not able to maintain space programs alone, enter into partnerships with other countries through regional or international cooperation. Despite the tangible scientific, socioeconomic, and even military benefits, the political aspects should always be considered. In the world of international

diplomacy appearances can make all the difference.