



Prospects and opportunities for space collaboration with Latin America: What can India contribute and gain?



Ajey Lele^{a,*}, Ciro Arévalo Yepes^{b,1}

^aInstitute for Defence Studies and Analysis (IDSA), New Delhi, India

^bUnited Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS), Colombia

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ABSTRACT

India in Asia and Brazil in Latin America are regarded as the most promising global economies. This paper examines the openings and possibilities for space technology collaboration between India and Latin American states under the larger rubric of science and technology collaboration. While the distance and language barriers between the two regions have proved a hindrance in the past, the paper proceeds with an assumption that, in the 21st century, such barriers should not be a limitation on developing strategic, economic, and science and technology partnerships among nation-states. The paper argues that the Latin American states are keen to have their own satellites because of their significant utility in the socio-economic sector and this offers an opportunity to India to use cooperation in space technologies as a powerful tool for engagement in Latin America.

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1. Introduction

The states of Latin America are increasingly interested in developing a space programme but have needed to cooperate with the more established spacefaring countries to get their efforts off the ground. This paper examines the openings and possibilities for space technology collaboration between India and Latin American states. India in Asia and Brazil in Latin America are regarded as among the most promising global economies. Both these states are already a part of regional groupings like IBSA (India-Brazil-South Africa) and BRIC (Brazil, Russia, India and China). In addition to Brazil, various other states in Latin America like Argentina, Colombia and Venezuela offer major scope for the development of bilateral/multilateral relationship with India which could be mutually beneficial. Indeed, despite varied and growing capabilities, these countries are keen to acquire satellites and related technologies, while India has the required expertise in this field. The paper limits itself to recognizing this relationship in the space domain. It also argues that the present and future of any Latin American–Indian partnership in space should not be seen in isolation but should be viewed as a subset of overall science and technology (S&T) collaboration.

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After briefly discussing the space capabilities of both India and various Latin America countries, the paper looks at the types of international cooperation already underway before turning to the opportunities for collaboration between India and Latin America and the benefits that might result.

1.1. Background

The Latin American region covers the sub-regions of South America, Central America and the Caribbean. Thus, geographically speaking, Latin America should not be considered a synonym for South America but as a large geopolitical bloc which includes 33 nations. However, for the purposes of this article both the terms are used interchangeably. Traditionally India and Latin America have shared friendly and close interaction both at bilateral and multi-lateral levels. The world has undergone a new technologically-driven revolution, leading to “the Information Age”. This revolution has made the geographical divide among various nation-states irrelevant; the same could also be true in case of India and Latin America.

* Corresponding author.

E-mail addresses: ajey.lele@gmail.com, ajey.lele@gmail.com (A. Lele).

¹ Former Chairman, UN COPUOS.

India and Latin America share various common cultural and political values. There are interesting parallels between them. Both had a colonial past and were economically underdeveloped regions. They have witnessed the complicated process of national building and ushering in democracy with the simultaneous process of assuming social reforms. Historians have noted Indian influence on Portuguese art. Quinine and rubber came to India from Brazil, while sugarcane seeds reached Cuba from India and mango was exported to Latin America from India. In general Latin America adopted a neutralist posture during and after the second world war and states like Argentina and Brazil even articulated a non-aligned policy (a cornerstone of Indian foreign policy at that time) labelled a 'third-position' in relation to the Cold War [1].

There are significant complementarities between India and Latin America particularly in their commitment to South–South cooperation [2]. India as a developing economy is in constant need of various natural resources and is required to acquire them beyond its geographical boundaries. Latin America, the richest region in the world in terms of commodities and natural resources, offers great opportunities for India for resources procurement. It can offer India various commodities, from raw materials, oil, iron ore, copper, gold and silver to agricultural produce [3]. In the recent past a two-way investment between India and Latin America has begun and India is making investments in areas like Information Technology (IT), the pharmaceutical industry, bio-fuels, mining, and the engineering and auto sectors [4]. It is also important to note that both India and Latin America were able to weather the phase of economic meltdown experienced during 2008–09 mainly by North America and various parts of the EU during 2012. A particular example of increasing bilateral relations is that of India and Colombia. Their diplomatic relationship has been ongoing for over 50 years. Since 2010 more than 17 high-level meetings have taken place in Delhi and Bogotá, involving ministers of foreign affairs, vice-ministers and ministers of mines and energy. The two countries have signed 14 cooperation agreements and memoranda of understandings (MOUS) in a variety of activities: cultural, trade, science and technology, geology and mineral exploration, engineering sciences, among others. The most important, which include space cooperation, are the bilateral cooperation framework agreements signed in 2009, which complement the 2005 agreement on science and technology.

Presently, the Latin American region presents an interesting case of economic development in the era of global financial crisis. In spite of a decrease in foreign investment, the region is able to maintain economic stability. This perhaps has become possible because of its large domestic market and because of closer trade ties with China [5]. However, this cannot hold true for the entire region because of the different economic circumstances in individual states. Regional composition at social and technological levels in Latin America normally varies depending on an individual state's priorities and key development objectives. Apart from problems of governance, like poverty, insufficient access to water and sanitation, vulnerability to disease and hunger, the region also suffers various natural calamities. Latin America also registers high levels of flooding and storms, soil degradation and crisis in food security. These problems contribute significantly to the scarcity of water and food shortages, on which the survival of most of the population depends.

Actual figures demonstrate that the number of poor and indigent persons is increasing, reaching 177 million persons in 2010. Between 1970 and 2010 floods and storms accounted for almost 70% of natural disasters, leading to 467,000 deaths, with an average of 4.5 million persons affected. The Intergovernmental Panel on Climate Change (IPCC) predicts that the number of people experiencing water shortages in the Latin American region will range

between 12 million and 81 million in 2025, probably reaching between 79 million and 178 million persons in 2055. All this clearly indicates that technology, and in particular space technology, has major relevance not only for the purposes of economic development but also for the purposes of satisfying societal needs, dealing with disaster management, weather forecasting, navigation and communications. The region provides great potential for (space) technology assimilation. Remote sensing, various sensor technologies, nano technologies, robotics and smart materials could all be of interest.

India understands that Latin America includes both emerging developed nations/developing economies like Brazil, Mexico, Colombia, Argentina, on one hand and small but diversified economies like Jamaica, Haiti, on the other. During the past decade there has been an approximate increase in Indian exports to Latin America of almost 200%, while the increases in imports have also been around 175% [5]. The 21st century is witnessing much warmer diplomatic relations in comparison with the period of the first 50 years of the Indian independence. This period witnessed only 12 presidential visits from Latin America to India, while in 2001–2011 ten visits took place, demonstrating the increasing importance of bilateral engagement [6]. It has been observed that both these regions have similar global aspirations and an analogous agenda on various multilateral matters. This is particularly true in regards to the economic, agriculture and S&T front.

India and Latin America have reaffirmed their determination to collaborate in all multilateral fora to maintain global peace and security, promote economic and social advances and to tackle global threats and challenges. Both sides have reiterated on different occasions the need to implement the process of UN reforms to make it more representative, legitimate and effective [7]. In this regard, they have argued that any expansion and restructuring of the UN Security Council must reflect contemporary realities, increase transparency and democracy, and include developing countries.

On the ideological front Latin America and India share a core set of values – democracy, market economy, and a strong urge for development by imbibing best practices. They understand that their relationship has great geopolitical significance, particularly where technology is concerned. The following sections briefly describe the progress made in the space technology field to date.

2. India: a developing state with multidimensional space agenda

India made a nascent beginning in the space arena in 1963 and today has been globally reorganized as one of the most successful space powers with a strong network of remote sensing and communications satellite systems. The country can launch satellites in the category of 2000 kg and has also successfully undertaken its first Moon mission; in November 2013 it will be launching its first (robotic) Mars mission [8]. India has also assisted the launch of 29 foreign satellites by offering their launch facilities either on commercial terms or otherwise.

In 1963 India's entry into the space field began with the launching of sounding rockets [9]. Subsequently, the country placed its first satellite, Aryabhata, in orbit with the help of the USSR on 19 April 1975. India became a fully fledged spacefaring nation on 18 July 1980, when it launched a satellite to orbit using its own rocket launching system. Since then it has come a long way and achieved significant success. Today, India is in a position to launch a 2000–2500 kg weight satellite into geostationary orbit [10]. However, the major limitation of India's space programme is its inability to launch heavy satellites (say of the variety of 4000 kg or more) to the geostationary orbit. This is because India is yet to

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