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China's Design to Capture Regional SatCom Markets

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INTRODUCTION

China is strategically capturing a major share of the international communications satellite market. This includes launching government satellites of developing countries in the Global South, such as Nigeria, Venezuela, Sri Lanka and Pakistan, some of whom have repeat orders in place. China has developed an ITAR-free (International Traffic in Arms Regulations) communications satellite bus known as Dong Fang Hong 4 (DFH-4) and uses its own launch vehicle Long March 3B (LM-3B) for executing these contracts. The China Great Wall Industry Corporation (CGWIC) is China's government entity authorised to negotiate and execute these contracts.

This report gathers information on the key elements of these contracts to provide a broad perspective on the developments so far. It makes an assessment of the rationale for acquiring satellites, the scope of their use, as well as the problems that have subsequently arisen. The relation between satellite contracts and China's Belt and Road Initiative (BRI) is also examined.

Table 1. International Communications Satellites Launched by China (2007-2017)

No.	Country	Satellite	Launch	In-Orbit Delivery	Satellite Bus	Cost	Funding
1	Nigeria	NigComSat-1	May-07	Jul-07	DFH-4	\$300 million	China EXIM Bank
2	Venezuela	VeneSat-1 / Simon Bolivar	Oct-08	Dec-08	DFH-4	\$241 million	China
3	Pakistan	PakSat-1R	Aug-11	Nov-11	DFH-4	\$222 million	China EXIM Bank
4	Nigeria	NigComSat-1R	Dec-11	Mar-12	DFH-4	-	Insurance from NigComSat-1
5	Sri Lanka	SupremeSat-1 / ChinaSat 12	Nov-12		SB4000	\$100 million (leased transponders)	
6	Bolivia	Tupac Katari-1	Dec-13	Apr-16	DFH-4	\$302 million	85% financed by China Development Bank
7	Laos	Laosat-1	Nov-15	Mar-16	DFH-4	\$259 million	China EXIM Bank
8	Belarus	Belintersat-1	Jan-16	May-16	DFH-4 bus with Thales transponders	280.9 million	China EXIM Bank
9	Algeria	Alcomsat-1	Dec-17	Apr-18	DFH-4		

Table 1 shows that China takes a minimum of two months to complete in-orbit tests before handing over the satellite to a foreign government. These

contracts involved building at least two ground stations as well as training of technicians from the contracting countries. Bolivia took the longest time in taking over its satellite as the contract involved its technicians working alongside Chinese engineers for two years.

The table also shows the costs of these satellites supported by funding from Chinese banks. China used the insurance from the defunct NigComSat-1 satellite to build the replacement satellite NigComSat-1R for Nigeria. The Algerian satellite is the most recent to be deployed by China and some of the required details are yet to be published. The Cambodian satellite is yet to be launched.

Some of these countries have approached China for launching their second communications satellite as well. Sri Lanka's SupremeSat-2, for example, is set to be launched later this year. Unlike the first satellite (transponder leasing), the second contract will follow the procedure established with other countries. The satellite will be built on DFH-4 platform and funded by China's EXIM bank. Bolivia's second satellite, meanwhile, is scheduled for 2020/2021 while China's EXIM bank will also fund Nigeria's order for two more communications satellites worth US\$550 million. Pakistan, too, will be acquiring another communications satellite built by China. In addition to the government orders, China also has won a few commercial contracts, increasing its share of the international communications satellite market. Thaicom of Thailand and two Indonesian commercial contracts will be fulfilled by 2022.

The Market Value

The first artificial satellite Sputnik demonstrated the feasibility of acquiring communications signals from space. Satellites in the geostationary orbit (about 36,000 km above the Equator) seem to stay fixed above a particular region covering roughly one-third of the Earth's surface. This allows geostationary satellites to act as communication relays between distant countries. For example, Intelsat 1 located over the Atlantic Ocean connected North America to Europe and allowed NASA to communicate with Apollo 11. Syncom 3 relayed the 1964 Tokyo Olympic Games to the US over the Pacific Ocean.

The communications satellites revolutionised television, telephone and broadcasting services and are used by both civilian and military users. Intelsat, Eutelsat, Iridium, SES, among others, have emerged as some of the world's largest commercial satellite operators. The use of satellite communications coincided with the rise of economic powers from the West (and Japan) to Asian

Tigers to China and India and onwards to Africa. In the process, Malaysia, Thailand, China and India have established governmental and commercial satellite operators.

As of December 2016, the geostationary orbit hosted 520 satellites. Government communications accounted for 14 percent and commercial communications 35 percent of the total satellites. The satellite industry revenue stood at US\$260 billion, of which satellite services was US\$127 billion and space industrial base (launch industry and satellite manufacturing) US\$19.5 billion.¹ Satellite TV alone accounts for 77 percent of the overall satellite services. The US leads the geostationary satellite manufacturing market with about 60 percent of the share; China's share is 12 percent.

China intends to capture at least 10 percent of the global satellite market by 2020.² To compete with the mature Western companies, China concentrates on the emerging demand from the Global South. China has so far been able to establish its footprint in South American, African, South Asian and South East Asian countries; these could serve as anchors for expansion.

CHINA'S SATELLITE CONTRACTS WITH GOVERNMENTS

Africa

Nigeria

Nigeria's NigComSat-1 is both the country's first communications satellite, and the African continent's. This is the first contract for China fulfilling all the aspects of 'in-orbit satellite delivery' to an international customer. The in-orbit delivery consists of building, launching, testing, ground stations, and training of contracting country personnel as well as the financial support for the project. NigComSat-1 costs US\$300 million, including the insurance premium for the first year in orbit.³ The satellite failed in orbit due to loss of power system, and China launched a replacement satellite NigComSat-1R free of charge by utilising the insurance from the failed satellite.⁴ The Nigerian president then declared that the country will be able to reduce its annual expenses by about US\$1 billion accruing from using the foreign satellites.⁵ Even as industry officials point that the figure is inflated, the Nigerian officials themselves estimated the expenses to be about US\$455 million.

However, the economic case for Nigeria launching its own satellite cannot be established as the satellite is underutilised. The telecommunications as well as internet associations have questioned the authorities about the expected

outcomes from using the satellite in unserved communities.⁶ The Nigeria Internet Group has recommended handing over the satellite to the private sector for proper implementation of its services.⁷ A negative assessment can be expected from these associations which rely on ground infrastructure for business. However, a motion was allowed in the Nigerian House of Representatives in October 2017 mandating the Committee on Information Technology to probe the causes for 'non-patronage' of NigComSat-1R and urging the government to issue guidelines making the use of the satellite mandatory.⁸ According to Francis Chizea, Director, National Space Research and Development Agency of Nigeria, the non-patronage is due to non-availability of backup to NigComSat-1.⁹

Nigeria has announced NigComSat-2 & 3 projects, expected to cost US\$550 million and to be funded by China's EXIM bank.¹⁰ Chizea believes the constellation will ensure full utilisation of the satellites. Unlike the earlier contract, the new funds will be infused by China in exchange for a stake in the Nigerian Communications Satellite Ltd. (NIGCOMSAT), the company operating NigComSat-1R. Chizea asserts that Chinese stake buy is an indication of the profitability of these projects. The percentage share is yet to be finalised but Nigeria expects that this arrangement will help it capture the African market competing with the Western operators.¹¹ This will also help China claim a foothold in the burgeoning African market.

Moreover, NIGCOMSAT and Turkey's TURKSAT company have signed a Memorandum of Understanding to collaborate on the delivery of satellite services as well as sharing ground infrastructure in Africa and Europe. Backing up the capacity, training, content sharing and applications development are also part of the collaboration. NIGCOMSAT also won a bid to provide in-orbit testing and spectrum management services for Belarus' Belintersat-1.¹² These deals help NIGCOMSAT to establish relations with other emerging space players which in turn also benefit China as a shareholder of the company.

Algeria

Algeria is the first international customer to launch a high throughput satellite (HTS) named AlComSat-1 from China.¹³ A HTS can provide data output (bits/sec) many times the capacity of a standard communications satellite within the same allocated frequency by producing multiple beams (spot beams) using same frequency (frequency reuse).¹⁴ The escalating demand for higher data rates by various industries could be satisfied with these satellites.

AlComSat-1 also serves Algeria's military and strategic users.¹⁵ Algeria has an earth observation satellite constellation in operation since 2002 and has unveiled 2020-2040 space programme involving launch of more satellites.¹⁶ Prior to its indigenous space programme, France used to test its sounding rockets as well as launch its first satellite from Algeria.¹⁷

South America

Venezuela

VeneSat-1, named 'Simon Bolivar' after the revolutionary, was China's first satellite contract with Venezuela and the first international customer from South America. Venezuela's then President Hugo Chavez believed that the satellite will advance the "construction of socialism" and end of "media bombardment" by the United States as the South American countries rely heavily on Western commercial satellites.¹⁸ Venezuela under Chavez had nationalised the media and the telecommunications sector before the satellite was launched.¹⁹ Uruguay will also be a direct beneficiary as it allowed the satellite to be placed in its orbital slot in return for 10 percent of transponder capacity.²⁰

VeneSat-1 project is part of South America's quest to build a regional satellite system aimed at strategic autonomy and regional integration. The 1969 Cartagena Accord between Bolivia, Colombia, Ecuador, Peru and Venezuela for creating a common market involved developing this regional satellite system. Attempts made by the bloc ended with either financing difficulties or Western operators persuading the countries to lease transponders.²¹ While transponder leasing makes economic sense and eliminates the problem of finding local technicians, dependency on foreign satellites was antithetical to conceiving the project in the first place.

China's assistance in the satellite project resolved both the financial and work force issues and fits well into Chavez's anti-West rhetoric. He declared the satellite as having strategic and historical importance for Venezuela and China.²² Indeed, China has invested heavily in Venezuela's oil, finance (includes a joint investment fund) and manufacturing sectors and finds it a major market for its exports. It has loaned US\$65 billion in exchange for oil and helped it develop an oil field believed to be the world's largest.²³ In this context, VeneSat-1 has opened another sector for cooperation between China and Venezuela, satisfying their respective business and political interests. China later launched Venezuela's remote sensing satellites VRSS-1 and 2.

Bolivia

The Bolivian President Evo Morales joined Chavez at the launch of VeneSat-1 in 2008. Years later, the CGWIC was contracted by Bolivia to launch its first communications satellite Tupac Katari (TKSat-1), named after a Bolivian resistance figure. Unlike other contracts, Chinese and Bolivian technicians worked together for two years before the satellite was officially delivered in-orbit.²⁴

The satellite was worth US\$302 million, with 85 percent of the cost financed by the China Development Bank under the jurisdiction of State Council.²⁵ The country has paid back about US\$50 million by June 2016.²⁶ The agency expects to recover the cost of the project in 15 years, the expected life of the satellite. At least 75 percent of TKSat-1 capacity has been allocated to government and commercial users, generating US\$7 million in revenue in 2014. It was expected to reach US\$24 million in 2016 and US\$500 million over 15 years.²⁷ The Bolivian space agency noted in late 2017 that the satellite would soon be operating at maximum 85 percent capacity. Yet, internet access is still non-existent in Bolivian rural areas, compelling the launch of a second satellite TKSat-2 latest by 2021.²⁸

South Asia*Pakistan*

Pakistan launched its first satellite Badr-1 on a Chinese launch vehicle in 1990 owing to the delay with the American launch in the aftermath of Challenger disaster. The cooperation resumed in 2011 when China launched Pakistan's first communications satellite PakSat-1R with financial support from Chinese EXIM bank. However, the Space and Upper Atmosphere Research Commission (SUPARCO) clarified that the cost of ground stations (Karachi and Lahore) was borne by Pakistan itself.²⁹ The satellite also hosts Pakistani hardware not critical for the functioning of the satellite in order to test the country's ability to design satellite subsystems.³⁰

A SUPARCO subsidiary PakSat International operates the satellite. It has been managing PakSat-1 since 2002, which was originally launched by Hughes company in 1996 for Indonesia and later owned by Turkish operators. The PakSat-1 was bought and placed in the orbital position to protect the slot before PakSat-1R could be launched.³¹ PakSat defines itself as an entity offering 'commercial' satellite capacity lease across South Asia, West Asia, Africa and

Europe. PakSat-1R will be followed by PakSat Multi-Mission Satellite (PakSat-MM1).

The new satellite will also be operated as a commercial communications satellite including the provision for DTH services. SUPARCO and CGWIC have signed a contract for joint development of the satellite sharing the costs 50:50.³² The contract involved the provision for an interim satellite to fill the gap in terms of capacity as well as save the orbital slot before the actual satellite could be launched. During the signing ceremony, it was announced that the interim satellite has already arrived in the orbital slot.³³

The satellite that is currently occupying the 38.2 East orbital slot is AsiaSat-4.³⁴ Indeed, AsiaSat's 2017 annual results report mentions that a lease for the full payload of AsiaSat 4 has been secured after migration of this satellite's customers to another satellite AsiaSat 9. It can be concluded that Pakistan is currently relying on AsiaSat 4 before PakSat MM-1 is launched. Pakistan and China are also looking into new commercial contracts where both the parties can share the costs and revenue.³⁵

Sri Lanka

Much like in maritime projects, China is also investing in Sri Lanka to capture a majority share of South Asia's satellite requirements. The earlier Sri Lankan government led by Mahinda Rajapaksa had supported the local company SupremeSat for this purpose. It continues to receive financial and technical support from China despite the current government's inquiries into its operations.

SupremeSat is the Sri Lankan commercial satellite operator which is a subsidiary of Supreme Global Holdings with investments in commodity trading, shipping, real estate and others primarily targeting Africa.³⁶ SupremeSat mentions that it owns a satellite named SupremeSat-1 in partnership with China SatCom and is positioned at 87.5 East orbital slot.³⁷ It also mentions that the satellite has a steerable spot beam consisting of 'four' high power Ku band transponders.

The satellite that is currently occupying the 87.5 East orbital position is ChinaSat 12.³⁸ Moreover, filling a geostationary orbital slot with only four transponders does not make economic sense. In fact, ChinaSat 12 is originally Apstar 7B, a backup satellite to Apstar 7 ordered by the Apstar company to replace its Apstar 2R satellite. The company ordered the backup satellite in case

of a launch failure. The company has agreed to transfer the backup satellite to China SatCom in case the launch is successful in order to recover the extra expenditure on the project.³⁹

SupremeSat merely leased a few transponders on the Apstar 7B/ChinaSat 12 but has been allowed to brand the lease as SupremeSat-1 and promote it as Sri Lanka's own first communications satellite.⁴⁰ The promotion came in the wake of other high-value infrastructure related deals between China and Sri Lanka, assessed to be at the expense of India's strategic influence in the region. However, the Indian diplomatic mission in Sri Lanka has clarified during the launch that it is a commercial satellite stationed in a Chinese orbital slot and therefore "not a concern" for India.⁴¹

Domestically, the satellite contract was scrutinised over the use of orbital slot, involvement of Rajapaksa's son and, most importantly, funding. Then leader of opposition Ranil Wickremesinghe demanded a clarification as to whether Sri Lanka has launched its own satellite which coincided with the launch of ChinaSat 12 and if China were using Sri Lanka's orbital slot.⁴² The current government also launched an investigation into the financial irregularities by SupremeSat.

SupremeSat tried obtaining funds from Sri Lanka's Board of Investment but the request may have been denied citing the firm's lack of expertise in managing satellite business.⁴³ However, the Sri Lankan government has announced last year that SupremeSat has diverted funds from the Ceylon Electricity Board in the guise of coal imports with the help of Mahinda Rajapaksa's son Rohitha Rajapaksa.⁴⁴ The Financial Crimes Investigations Division questioned Rohitha earlier. Rohitha allegedly pointed to British foreign secretary David Miliband as helping them obtain the investors for SupremeSat.⁴⁵

Supreme Group Chairman R. M. Manivannan admits that Rohitha played a critical role in the design process of SupremeSat and that he will be involved in finalising SupremeSat-2. He argues that SupremeSat has made an investment in the project prior to the launch of the satellite and therefore it should be seen as (part) ownership rather than leasing. The company has investment target of US\$320 million over a five-year period, which includes three satellites, ground infrastructure and a space academy.⁴⁶ US\$100-million of this was allocated for SupremeSat-1. He asserts that the funds were acquired from an overseas commercial bank as a loan.

It is highly probably that Chinese EXIM bank could be the creditor given other such loans to developing countries for launching their communications satellites. Manivannan's turn to China also supports this assumption. He argues that China was approached after the Indian companies were reluctant to collaborate on a satellite joint venture. The claim mimics India's disinterest in the Hambantota port project when it was approached first by Sri Lanka.

Regardless, SupremeSat plans to become the largest private satellite operator in South Asia by making Sri Lanka the regional hub for such activities.⁴⁷ The SupremeSat-2 will be built on China's DFH-4 satellite bus with funding from Chinese EXIM bank.⁴⁸ It is also setting up a space academy to train Sri Lankan technicians under Chinese mentorship funded through a US\$20 million joint venture with CGWIC. A major infusion of funds occurred via a Chinese Forbes billionaire investing US\$30 million in SupremeSat.⁴⁹ The Supreme Group also has agreement with Beijing Aerospace Great Wall Minerals Corporation allowing the group's mines in Sri Lanka, Indonesia and Madagascar to be developed by China.⁵⁰

This development has parallels to China's entry into Venezuelan and Bolivian mining industries using satellite launches as a tool.

South East Asia

Cambodia

China signed a satellite contract with a Cambodian local conglomerate, The Royal Group, to deliver a satellite named Techo-1.⁵¹ The US\$150 million agreement was signed between China Development Bank and the group in the presence of visiting Chinese Premier Li Keqiang and Cambodian Prime Minister Hun Sen.⁵² Cambodia intends to strengthen its telecommunications sector and Hun Sen has requested the conglomerate to fast-track its earlier plan of launching a satellite with the help of a foreign company.⁵³ The group has investments in most of the basic industries of Cambodia such as finance, transportation, telecommunications, and real estate, and maintains close relations with the Hun Sen family.⁵⁴

Techo-1 is China's first international satellite contract explicitly linked to the Belt and Road Initiative (BRI). It is one of the 19 deals signed by Cambodia inviting Chinese investments in expressways, power transmission, airports, and Special Economic Zones. The joint communique calls for speeding up the process for alignment of China's BRI and the 13th Five Year Plan with

Cambodia's Rectangular Strategy, National Strategic Development Plan and 2015-2025 Industrial Development Policy to fully implement the 'Outline Plan for Jointly Promoting Cooperation on the Belt and Road Initiative.'⁵⁵

Li Keqiang's visit marks 60 years of diplomatic relations between the two countries where China was able to extract political dividend in exchange for investments in Cambodia's infrastructure.⁵⁶ Cambodia is China's primary ally, forcing dropping or withdrawal of Association of South East Asian Nations (ASEAN) joint statements on South China Sea.⁵⁷ The association failed to issue a joint statement for the first time during a 2012 summit in Cambodia. Cambodia says it is not an issue between China and ASEAN as a whole. Hun Sen also strengthened his domestic political position with the support of China when the United States and the European Union opposed the dissolution of Cambodia's main opposition party.⁵⁸ However, Cambodia may also fall into the debt trap that has become synonymous with BRI. The country owes 62.5 percent of its debt solely to China.⁵⁹

Laos

The Laosat-1 was delivered in-orbit in 2016 at a cost of US\$259 million with funding support from Chinese EXIM bank.⁶⁰ The loan was signed in the presence of respective Chinese and Laotian presidents and prime ministers. Laosat-1 is the first Chinese satellite contract with ASEAN and is considered to be part of Chinese BRI.⁶¹ The satellite is owned by LaoSat-1 joint venture company which has four shareholders. The Laotian government owns 45 percent, 50 percent is owned by two subsidiaries of China Aerospace Science and Technology Corporation and 5 percent by Asia-Pacific Satellite Technology of China.⁶² The Lao Asia Pacific Satellite Ltd. is responsible for commercial operations of the satellite. Indonesian, Chinese and Thai operators have agreed to lease some of the capacity while a Thai company is interested in distributing LaoSat-1 receivers.⁶³

Along with Cambodia, Laos also declared that the South China Sea dispute is not an issue for ASEAN as a whole. It has refused to acknowledge the Permanent Court of Arbitration verdict on the South China Sea dispute case launched by the Philippines.⁶⁴ It is a major recipient of BRI investments including the construction of a US\$6 billion railway line that will eventually connect China to eight Asian countries via Laos. Majority of equipment and labour working on the project is Chinese. Laos is also facing a debt trap for procuring the project funds.⁶⁵

Europe

Belarus

Belarus is an exception as the party to China's first international satellite contract with a European nation.⁶⁶ However, Belarus is no exception when it comes to acquiring China's financing or being part of its European foothold investments.

Belintersat-1 was delivered in-orbit in 2016. It is based on China's DFH-4 satellite bus with Thales supplied transponders.⁶⁷ This is the first Chinese international customer satellite to carry the payload designed by an external company. The satellite operating company Belintersat mentions that CGWIC has won the contract through an international tender process. However, Belarus obtained a loan from Chinese EXIM bank to fund the project.⁶⁸ Along with this, other provisions such as ground stations and technician training were also part of the contract.

The aim of Belarus is not so much about showing its flag in space but revenue. Belintersat is created as a commercial entity targeting the Asian, African and European markets as Belarus' domestic requirements can be met with mere five percent of the satellite capacity.⁶⁹ Belintersat-1 is the beginning and more satellites would follow to complete a constellation. Interestingly, half the capacity is leased to Chinese customers and the company selected NigComSat of Nigeria as a partner for Africa operations.⁷⁰ NigComSat performed in-orbit testing for Belintersat-1 and is providing carrier spectrum monitoring services for the lifetime of the satellite. This is the first time two of the Chinese international satellite customers are collaborating for expansion of business.

The geographical position of Belarus makes it a gateway country for China's BRI extending from Asia to Europe. In 2017, at least 100,000 Chinese rail containers were switched from the narrow gauge to the European in Belarus, almost double the number from previous year and expected to reach 500,000 by 2020.⁷¹ The same year Belarus returned a freight train with its goods destined for China, marking a two-way trade along the New Silk Road.⁷² China and Belarus are also evolving a security partnership with the former supplying armored vehicles.⁷³ The satellite project strengthens cooperation between the two countries in addition to allowing China to lease some of the spectrum.

CHINA'S COMMERCIAL SATELLITE CONTRACTS

Thailand's commercial satellite operator Thaicom has contracted CGWIC for a HTS built on the DFH-4 bus valued at US\$208 million. The company aims to

lease the satellite's total capacity to an unnamed customer, which will be responsible for the payments to CGWIC.⁷⁴ Thaicom also has other business deals with China and Hong Kong-based space entities. It reached an agreement with China to sell bandwidth on its Thaicom-4/IPSTAR-1 HTS to the mainland. As part of the deal, Thaicom will become a shareholder in one of the Chinese companies that is part of the deal.⁷⁵ In 2011, Thaicom agreed to lease half of AsiaSat 6 transponders and place an interim satellite in its orbital position to preserve the slot.⁷⁶

The CGWIC landed its second international commercial satellite contract with Indonesian operators. A joint venture of Indonesia's Indosat ooredoo and Pasifik Satelit Nusantara (PSN) intends to launch Palapa-N1 HTS with about 10 Gbps capacity from China.⁷⁷ China also signed a framework agreement with PSN to launch a more powerful 100 Gbps capacity PSN-7 HTS that will use 104 spot beams covering South East Asia.⁷⁸ Palapa-N1 being funded by a Chinese commercial bank loan will replace Palapa-D. China launched Palapa-D into a lower orbit due to a launch anomaly forcing the engineers to use some of the internal fuel meant for station-keeping to reach the intended orbit.⁷⁹ The lifetime of the satellite built on Thales Spacebus 4000 platform was thus reduced to 11 years from 15.⁸⁰ It was not the first time for PSN to use an ITAR-free satellite as it leased transponders on China's SinoSat-1/ChinaSat 5B built on a Spacebus 3000 platform.⁸¹

GENERAL OBSERVATIONS

1. ITAR-free Satellites

The routine of launching Thales' Spacebus-based ITAR-free satellites on Chinese Long March vehicles has come to an end with Turkmenistan's first communications satellite. The US has begun investigating the practice and with the China option becoming increasingly harder, the Turkmenistan satellite was eventually launched on American SpaceX rocket.⁸²

The ITAR-free satellites are those spacecraft built outside the United States supposedly without a single component that is restricted by the said regime. The US administers export controls with the help of Export Administration Regulations controlling items on the Commerce Control List (CCL) maintained by the Department of Commerce and the ITAR controlled items on United States Munitions List (USML) managed by the Department of State.⁸³ The USML items are strategic in nature and therefore more strictly regulated than the CCL items. A review process for exporting an item from these lists will

assess the end use and user while contemplating American economic and national security interests.

During the 1980s and 1990s, the satellites became part of the US domestic and international political relations. Ronald Reagan allowed launching of American satellites on Chinese rockets with preconditions following the Challenger disaster. However, the US Congress interjected in the aftermath of the Tiananmen Square protests, barring launching satellites from China. A presidential waiver would have to be obtained in case such a launch is deemed in the interests of the US. However, the Cox Commission appointed by the US Congress has declared that the review of Chinese rocket failures by American corporations led to transfer of sensitive information and helped China to perfect its ballistic missiles. Subsequently, the US Congress transferred satellites and related items from CCL to USML. The State Department declared commercial satellites and components thereof as munitions forcing the operators to apply for fresh licenses. These developments resulted in restrictions on launching US made satellites or foreign satellites made with US components on Chinese launch vehicles.

Thales started promoting its Spacebus based satellites as ITAR-free to retain Chinese launch vehicle option. Although this process increases the cost of satellite by about six percent compared to using ITAR components, the cheaper launch vehicles available with China have offset the cost escalation.⁸⁴ However, the China threat to European launch vehicle company Arianespace resulted in a campaign by the company to compel the US government to investigate Thales' ITAR-free satellite business model.⁸⁵ The State Department warned Thales that its satellites are not completely free of ITAR components and that its licences would be suspended if it does not cooperate with the investigation.⁸⁶

Thales supplied information on its ITAR-free satellite design including the components used even as it audited the manufacturing process to verify if some of the components are mislabeled. In 2013, it was reported that Thales has discontinued manufacturing of these satellites, citing misleading labelling by American exporters.⁸⁷ An American company Aeroflex came forward, disclosing mislabeling the components it supplied.⁸⁸ The Chinese-made DFH-4 still remains 'ITAR-free' despite being scrutinised by responsible US agencies and departments.⁸⁹ Interestingly, China could now consider Thales as a competitor. Bangladesh's first telecommunications satellite Bangabandhu-1 is built by Thales but launched on SpaceX.⁹⁰ China already considers SpaceX as its main rival internationally because of its cost-cutting business model enabled by reusability.

2. BRI and International Satellite Launches

China did benefit commercially from Thales' ITAR-free satellite business by launching some of those satellites for international satellite operators.⁹¹ However, China is shielded better than Thales even if an investigation is carried out with negative consequences for it. The international business could be a loss to China but it may not affect the responsible organisations given the volume of domestic orders and state ownership.

With these strengths, China finds satellite exports as a major instrument to develop political relations with key countries in the Global South. The political relations provide China with business dividends. For example, China's relations with Venezuela, Nigeria, Pakistan, Sri Lanka and Cambodia have geostrategic implications. Relations with these countries help China to establish its presence in various regions such as South America, Africa, South Asia and particularly South East Asia either controlled or wish to be dominated by other major powers.

China relies on its economic power to gain political influence. It finances the infrastructure projects such as ports, roads, bridges, and railways constructed using Chinese personnel, equipment and material. Satellite projects are also part of this strategy. Satellite launches are celebrated and used as political mileage by incumbent political leaders such as Hugo Chavez and Mahinda Rajapaksa as their countries launch their first ever telecommunications satellites. The undertone of news articles and political discussions show that the Sri Lankans believed their country launched an actual indigenous satellite. China's launch of satellites helps Pakistan's narrative of challenging India's superiority in South Asia. Pakistan earlier had rejected being part of the South Asia Satellite project. Nigeria intends to demonstrate its African leadership role by showcasing technology.⁹² Cambodia and Laos are emboldened in their political allegiance to China.

China intends to connect many of these countries through the BRI. A 'Space Silk Road' is being outlined which will include China's communications, remote sensing, weather and navigation services offered to BRI participants.⁹³ However, Fu Zhiheng, executive vice president of CGWIC does not perceive BRI as a business driver for the company as there are other financial and technical constraints in the satellite launch process.⁹⁴ However, like other infrastructure projects, the developing countries need to generate enough revenue from the satellites to pay back the loan with interest as well as break even with other expenditure on the projects.

3. Regional Hubs and Satellite Services Markets

That China is seeking resources as well as markets for its products through the BRI is known. The electromagnetic spectrum and geostationary orbital positions are also natural resources and heavily contested. The number of government and commercial entities owning a satellite is increasing. The international launch contracts not only give China revenue from the upstream activities (satellite manufacturing and launch) but also downstream business opportunities (space services – images or broadcasting) with some of the customers. China is developing its customers into regional hubs for satellite services.

For example, China is investing into SupremeSat to help it become the South Asian regional hub for space services. Where feasible, the satellites are being controlled by new companies established for this specific purpose. China could then obtain stakes in those companies such as NigComSat in exchange for funding its two new satellites. China will be entering into cost and revenue sharing satellite contracts with Pakistan. SupremeSat is receiving major funds from China. Chinese companies command 55 percent share in the LaoSat-1 joint venture company. When Belintersat-1 was purely interested in satellite services export revenue, NigComSat entered into a partnership for servicing Belarus' African market. The Thai and Indonesian commercial operators are also interested in partnering with CGWIC or other Chinese government-controlled organisations for business.

CONCLUSION

China intends to capture a majority share of the growing satellite communication market using its satellite manufacturing and launch capacity. This puts China in direct competition with Western operators, and China has started targeting launch contracts from countries that share its perceptions on the West, such as Venezuela. These countries serve as anchors for China to enter regional markets spanning the Global South. However, there is lack of aggregate information and analysis on China's way of seizing such contracts and gaining regional market share.

This report gathered information on basic aspects of China's international satellite contacts such as cost, funding and market implications. Preliminary information has been provided on individual contracts and few general observations have been drawn to facilitate an in-depth analysis subsequently. Based on this analysis, it is observed that China has a well-planned strategy for

the international satellite communications market. This includes upstream and downstream activities. The upstream has been made possible with the loans to key countries in the Global South, which are determined to launch their first telecommunications satellites. China is also becoming part of the downstream activities in certain countries such as Nigeria, Sri Lanka and Pakistan by buying stakes in the local companies managing the satellites. This gives China access to emerging markets dominated by Western satellite operators or local agencies such as the Indian Space Research Organisation.

The repeat contracts from some of these countries show that China's market is expanding. Moreover, the satellite contracts are not just standalone commercial opportunities but strategic initiatives strengthening China's BRI strategy. It remains to be seen whether the satellite projects could generate revenue to pay back the Chinese loans, or if these countries risk falling into debt trap similar to the experience of those engaged with China in BRI-related projects. [ORF](#)

ABOUT THE AUTHOR

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ENDNOTES

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