Domestic Legislation and Challenges Related to Outer Space Laws in Pakistan

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Abstract

In Pakistan, there exists valuable technical and entrepreneurial capability that could be used to take full advantage of space benefits for national economic development. However, the country has not yet become a full spacefaring nation as compared to some other States. At national level, there is a strong realization to uplift national space program and many initiatives are being taken. However, lack of political will, interest in space related public policies are the main hindrances to formulate national space laws. The existing general national laws of Pakistan are somewhat relevant to outer space exploration and use, however, lack in full and systematic support of new developments as compared to various spacefaring nations. These are the challenges that must be addressed by Pakistan in order to legislate and to revisit its present structure, both legislative and decision-making, for outer space activities. This paper critically analyzes the domestic legislative hurdles and challenges with a view of recommending the adoption of relevant national laws and regulations in order to develop and sustain a full space economy as well as to implement Pakistan's international obligations, in line with some other States.

Keywords: lawmaking process, treaty implementation, national space policy, civil space agency, national space regime, Pakistan space program.

1. Introduction

In 1962, Pakistan became first country in South Asia, third in Asia and the tenth in the world to initiate satellite research and launch rocket into outer space. With an annual budget of just Rs. 4.70 billion (approximately

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US$ 33.13 million) during fiscal year 2018-19 , it is yet an emerging space power. Pakistan's space program was primarily designed to conduct scientific space research and serve specific domestic needs of the country. However, the space program was affected by emerging security threats and the political instability. Since its independence on 14 August 1947, the national security of Pakistan could hardly be secured by a stable civilian government. Confusion over the form of government, evolution of national constitution, and leadership crisis have shaped the current structure of national space regime in Pakistan. Three major martial law rules have steered the focus of space program to maintain strategic military orientation rather than civil and commercial utilization of it. Gradually, there is an increase in realization of socioeconomic benefit of space utilization.

Presently, space activities in Pakistan are carried out through a web of scattered numerous laws and regulations of general application in various sectors which have been adapted to cover several facets of space activities. This study makes an assessment of efforts regarding national space law and challenges in this regard. Firstly, an overall analysis has been made by exploring the origin and constitutional basis of Pakistan's space program. The turbulent history of constitutional making and shifting of powers in the executive branch of government reflect the effects on the current structure of national space regime. The study also highlights governance issues of national space policy and programs. Pakistan has ratified all five main international space law treaties, therefore, the process of incorporation and implementation of international treaties under the constitution of Pakistan has also been discussed. In order to address challenges in the adoption of national space legislation some recommendations have been made. This *basic* research is *exploratory* as it addresses the question that what is the current structure of national space regime in Pakistan and what are the challenges for national space legislation. The study is *descriptive* in way that it provides answer about how the chain of command for national space activities works and it addresses the question how international treaties are incorporated and implemented in Pakistan? It briefly investigates how Pakistan space program has been affected by political instability in different phases? It also addresses the question of why it is important for Pakistan to legislate national space law. Some issues of national space programs and policy have also been highlighted.

2. Origin and Constitutional Basis of National Space Regime

Pakistan is a federal state, comprising of four provinces and two territories, with a population of approximately 220 million in year 2020.[1] Under its

1 World Population Review, Population of Pakistan (2020), https://worldpopulationreview.com/countries/pakistan-population (accessed on 20 September 2020).

1973 Constitution,[2] Pakistan has a parliamentary form of government, the Prime Minister preforms as an executive and the President is a figurehead. The space program of Pakistan was initiated during the turbulent history of constitutional making and political instability. After the abrogation of Pakistan's first constitution of 1956, General Ayub Khan during the military rule (1958–1969) joined the United Sates (US) bloc in cold war rivalry between the US and the USSR and domestically it took a direction towards a 'security state'. Pakistan's Nobel Laureate Dr. Abdus Salam advised President Ayub Khan to establish a space research program. President Ayub accepted the proposal and Pakistan's space agency known as Space and Upper Atmosphere Research Committee (SUPARCO) was established on September 16, 1961.[3]

As in the early phase of space age, NASA offered all countries on the shoreline of the Indian Ocean to establish rocket ranges to obtain such data on the condition of complete sharing with NASA.[4] Pakistan accepted the offer and became the first country among developing nations to carry out experimental rocketry program. NASA began working with the SUPARCO in 1962 and in first collaborative work a two-stage sounding rocket Nike-Cajuns were used to launch sodium-vapor payloads from Sonmiani Beach, Pakistan.[5]

To develop Pakistan's space program, Dr. Salam successfully assembled a team of scientists and nuclear engineers and within the establishment of its second year sending a 2-stage solid-fuel sounding rocket with 80 pounds sodium payload Rahber-1 up to 130 km into the atmosphere, test of Rahber, 2 hypersonic sounding rockets Shahpar and Rukhnum. Shahpar was 7-m solid-fuel, 2-stage rocket which carried 70 kg payload up to 950 km and Rukhnum was a liquid-fuel 3-stage rocket which reached to 1000 km.[6] These were remarkable achievements in the first phase of space program. With these developments, at that time, Pakistan was a promising full spacefaring nation.

The second phase of Pakistan's space program started when General Ziaul Huq abrogated the Constitution and imposed martial law in 1977. Through a presidential ordinance in May 1981, the Space and Upper Atmosphere

2 The Constitution of Islamic Republic of Pakistan, http://www.na.gov.pk/uploads/documents/1333523681_951.pdf (accessed on 10 August 2020).

3 *Infra* n.5.

4 https://history.nasa.gov/SP-4401/ch7.htm (accessed on 16 June 2020).

5 Pakistan's Space Programme, accessed September 19, 2020, http://www.suparco.gov.pk/downloadables/03-Pakistans-Space-Programme.pdf (accessed on 16 September 2020). See also Hasan Murtaza and Ahmad Khan, "Pakistan Space Activities," in Handbook of Space Security, K.-U. Schrogl (Springer Nature Switzerland, 2020).

6 SP-4401 - NASA SOUNDING ROCKETS, 1958-1968: A Historical Summary, https://history.nasa.gov/SP-4401/ch7.htm (accessed on 16 June 2020).

Research Commission (SUPARCO) was re-established[7] as a successor to the Pakistan Space and Upper Atmosphere Research Committee abbreviated same as SUPARCO. During martial law period the scope of SUPARCO was shifted to facilitate military uses of space technology and projects related to satellites were also shut down. After the death of General Ziaul Haq in 1988 and subsequently political institutions restored.

From 1981 to September 2000 SUPARCO was under the administrative control of the Cabinet Division and its meetings used to be presided by Finance Minister.[8] The decade of the 1990s marked the beginning of a new parliamentary politics, however, the US sanctions were also fully invoked.[9] During the period of sanctions, China cooperated in Pakistan's space program leading to launch of Pakistan's first digital communication satellite Badr-1 in 1990. Later on, Pakistan became the first country to deploy China's BeiDou GPS network and this cooperation continued to progress until the present time.[10]

On 12 October 1999, General Musharraf assumed the State power. He established the National Security Council (NSC) under the Chief Executive. In February 2002, NSC approved National Command Authority (NCA). According SUPARCO Amendment Ordinance-2002,[11] the federal government has control over the Commission through NCA.[12]

The 11th National Assembly (2008–2013) and 12th National Assembly (2014–2018) adopted several measures to restore the powers of the Prime Minister and the President of Pakistan as a figurehead. Through NCA Act 2010, NCA was placed under the Prime Minister of Pakistan[13] and at present both NSC and NCA are presided by the Prime Minister of Pakistan. In 2018, the present government has taken office as third consecutive political setup. Under the 1973 Constitution outer space activities are within the exclusive jurisdiction of the Federal Parliament and there is no room for separate

7 *Supra* note 5.

8 *Ibid.*

9 Nuclear Sanctions: Section 102(b) of the Arms Export Control Act and Its Application to India and Pakistan, https://www.everycrsreport.com/reports/98-486.html#n_10_ (accessed on 16 June 2020).

10 Pakistan becomes first country to deploy China's BeiDou GPS network, https://tribune.com.pk/story/712376/pakistan-becomes-first-country-to-deploy-chinas-beidou-gps-network.

11 SUPARCO Amendment Ordinance (No. CXXVII of 2002).

12 The National Command Authority Act 2010, (hereinafter NCA act 2010). http://www.na.gov.pk/uploads/documents/1300934560_193.pdf (10 September 2020).

13 Air Cdre (Ret.) Ghulam Mujaddid, "The Next Decade of Nuclear Unlearning: Command and Control and Management of Pakistan's Nuclear Weapons," in Nuclear Learning: The Next Decade in South Asia, available at https://www.nps.edu/documents/104111744/106151936/9+Nuclear+Learning_Mujaddid.pdf/ab328d1a-2d07-4e15-af91-332192882e6e (accessed on 20 September 2020).

provincial jurisdiction over space matters. The Parliament has legislative authority over the regulation and legislation of space activities and its related sectors like telecommunications and broadcasting by satellites.

2.1. Structure and Organization of National Space Activities

The NSC approved the establishment of the NCA in February 2002 to control strategic organizations. As per powers and functions of NCA, it establishes authority over complete command and control over nuclear and space related technologies, system, and matters.[14] It has powers to supervise, manage and coordinate the administration, management, control and audit of budget, programs, and projects of the 'strategic organizations.' Under the NCA Act 2010, SUPARCO has been entitled as a 'strategic organization.' It has also power to authorize undertaking of specialized scientific and technological work.[15]

SUPARCO functions under the federal government though the Development Control Committee (DCC) of NCA and Strategic Plan Division (SPD) as a secretariat of NCA. DCC is responsible for preparation annual budget as well as audit of the Commission.[16] Matters related to sensitivity of functions and security consideration, security and defence of Pakistan and friendly relations with foreign states have also been allocated as a responsibility of NCA. Further, under the, NCA (Amendment) bill, 2016, passed by the Senate placed the powers for the disbursement of funds to the federal government instead of the finance division.[17] The Commission, in pursuant on the direction of NCA, achieves its mandate in cooperation with other government departments/agencies, private, universities, as well as international partners in domain that are not by law assigned to other departments.[18]

For regulatory purposes of space activities, the Commission is responsible for coordinating all federal space related policies and programs of the government. It undertakes space research and development activities in all areas, except launch vehicles and services. It has been mandated to (a) plan, direct, manage and implement programs and projects relating to scientific or industrial space research and development and the application of space technology; (b) promote the transfer and diffusion of space technology and (c) encourage commercial exploitation of space capabilities, technology,

14 *Supra* note 12.
15 *Ibid.*
16 *Ibid.*
17 The National Command Authority (Amendment), Ordinance No. 1 2016, http://www.na.gov.pk/uploads/documents/1466674033_535.pdf (accessed on 16 September 2020). Also see https://dailytimes.com.pk/39046/senate-passes-amended-national-command-authority-bill-2016/ (accessed on 16 June 2020).
18 SUPARCO, "Pakistan's Space Programme," http://www.suparco.gov.pk/downloadables/03-Pakistans-Space-Programme.pdf.

facilities and systems. The SUPARCO reports to the NCA and NCA directly reports to the Prime Minister of Pakistan.[19]

During General Musharraf rule both NSC and NCA were presided over by the President of Pakistan. After the restoration of 1973 Constitution of Pakistan and National Command Authority Act 2010 the Chairman of NCA is the Prime Minister of Pakistan, however, rest of the provisions left as they were. For example, the Chairman of the Commission is appointed by the President of Pakistan on the recommendation of the Chairman Joint Chief of Staff Committee (CJCSC).[20] The hierarchy of command and control of SUPARCO reflects it as a military space agency rather a civil space agency. In the following section, Pakistan's space vision and programs have been discussed. This section also highlights the issue of orbital slots for satellites.

3. National Space Program 2040 & 2047

At 19th NCA meeting held in July 2014, the Prime Minister of Pakistan approved Pakistan's National Space Program, 2040 in order to bring the benefits of the full spectrum of space technology to the people of Pakistan.[21] The space program 2040 was subsequently updated as space vision 2047 to mark the centennial anniversary of Pakistan's independence.

Some of the major milestones of Pakistan's space program include solid-fuel rockets, low-Earth orbit (LEO) experimental satellites, geostationary orbit (GEO) communication satellites, remote sensing satellites, ground station network, space studies infrastructure in Pakistan, and space applications in Pakistan. In 2019, space activities under SUPARACO entails satellite remote sensing (SRS) applications to meet Pakistan's specific needs was undertaken. Several projects in the areas of agriculture, water resource management, mapping, surveying, environmental monitoring, disaster management and mitigation etc., are undertaken.[22]

Moreover, these space programs have been formulated keeping in consideration that Pakistan is one of the extremely vulnerable country in South Asia to be affected by climate change.[23] The effects of climate change include drought and insect outbreaks, increased heat, declining water supplies, reduced agricultural yields, flooding and erosion in coastal areas.

19 *Ibid.*

20 *Supra* note 12.

21 NCA okays Nuclear Power Prog 2050, Space Prog 2040, https://www.geo.tv/latest/26091-nca-okays-nuclear-power-prog-2050-space-prog-2040 (accessed on 16 July 2020).

22 Hasan Murtaza and Ahmad Khan, "Pakistan Space Activities," in Handbook of Space Security, K.-U. Schrogl (Springer Nature Switzerland, 2020).

23 Pakistan crafts plan to cut carbon emissions 30pc by 2025, https://www.dawn.com/news/1187358/pakistan-crafts-plan-to-cut-carbon-emissions-30pc-by-2025/ (accessed on 16 June 2020).

Remote sensing satellites are necessary to monitor these climatic changes caused by natural and human activities. Space program and policies are pivotal to address these issues.

In January 2020 'National Emergency' on locust was imposed. The Space Application Centre for Response in Emergency and Disasters and SUPARCO in collaboration with UN-SPIDER Regional Support Office used space-based information to analyze areas with regards to desert locust habitats based on vegetation, soil type and other factors.[24]

Pakistan suffers from an acute shortage of freshwater. Pakistan Council of Research in Water Resources (PCRWR) warn the authorities about the scarcity by 2025. It has been predicted that Pakistan is on its way to becoming the most water-stressed country in the region by the year 2040.[25] On other hand, floods in rural area and urban flooding during the raining seasons have been witnessed in recent year which requires a careful planning and management. Pakistan space program can play significant role to address these serious concerns. In this regard, another commercial satellite PAKSAT MMI-38 is expected to be placed in orbit in year 2024.[26]

In comparison with its achievements in past, Pakistan is lagging behind and remains dependent on other States as a recipient of space technologies. It has been reported that total communication satellite capacity usage at present in Pakistan stands at approximately 2,200MHz, out of which 21 percent is on Pakistani satellite and rest is on foreign satellite. In financial terms, a minimum of $35-45 million per year is going out of the country.[27]

3.1. Issue of Utilization of Orbital Slots and Radio Frequency

There are two indispensable tools for satellite telecommunications, radio frequency bands and orbital slots. Only a limited portion of the radio frequency spectrum is useful for the satellite telecommunications and the radio frequencies for satellite telecommunications are shared with terrestrial and other satellite services. There is a strong competition for the use of radio frequencies. Therefore, the orbital slot is associated with frequencies and must be used for a given category of International Telecommunication Union (ITU) service within a given timeframe. As per

24 SUPARCO maps potential desert locust habitats in Pakistan, http://www.un-spider.org/news-and-events/news/suparco-maps-potential-desert-locust-habitats-pakistan (accessed on 16 September 2020).

25 Water crisis: Why is Pakistan running dry? June 8, 2018, https://www.thenews.com.pk/print/326969-water-crisis-why-is-pakistan-running-dry (accessed on 20 September 2020).

26 In national space program 2040 the satellite initially was planned to be launched in 2022. See H. Murtaza and A. Khan. Due to delays in manufacturing because of COVID-19 of the satellite it will launched in year 2024.

27 Khalid Mustafa, "Govt to Raise $700m for National Space Programme," The New, June 24, 2020, https://www.thenews.com.pk/print/677102-govt-to-raise-700m-for-national-space-programme (accessed on 20 September 2020).

ITU rules and regulation, States must use the allotted orbital slots to avoid their reallocation to other States.

To fulfill ITU requirements for its first commercial satellite, Pakistan, in 2002, managed to procure an in-orbit used satellite from Hughes Global System (HGS) of the United States at cost of $30 million.[28] After renaming it as Paksat-1, the satellite was moved to occupy the orbital position at 38 degrees East that was registered with ITU by Pakistan. The procurement of this satellite was crucial to occupy the orbital slot, the ITU registration of which was due to expire on 19 April 2003.[29] The ITU has mandate by its Constitution to "effect allocation of bands of the radio frequency spectrum, the allotment of radio frequencies and the registration of radio frequency assignments and, for space services," including parameters of satellites.[30]

In the past, due to its ideal terrestrial position five orbital slots were allocated to Pakistan, which could not be used before the deadline.[31] Upon the utilization of the slot by Paksat-1, Chairman National Telecommunication Corporation (NTC) said that if the slot was not protected "this strategic asset and any future opportunity to enter the space would have been lost forever."[32] The slot was secured by placing Pakistan's first commercial satellite to reach its orbital position at 38 degrees east in geosynchronous (GSO) orbit, 36,000km.

As in past utilization of allotted orbital slots has been a critical issue, recently in September 2020, Pakistan Frequency Allocation Board has submitted a request to the Radiocommunication Bureau of ITU for the extension of the regulatory period bringing-into-use of the frequency assignment to PAKSAT MMI-38, 2e-ka & PAKSAT-MM1-38.2E-FSS Satellite Network at 38.2 E. The frequencies Satellites are also being monitored at SUPARCO and the Frequency Allocation Board facilities.[33]

There is no single publicly available document as a national space policy of Pakistan. However, the implementing policies and procedures of national space programs are taken as an official space policy of government of Pakistan. Pakistan's national space policy document yet to be released by

28 Ram Jakhu, "Legal Issues of Satellite Telecommunications, The Geostationary Orbit, and Space Debris," Astropolitics, no. 5:2 (2007), https://doi.org/10.1080/14777620701580828.

29 *Ibid.*

30 Constitution of the International Telecommunication Union, https://www.itu.int/council/pd/constitution.html (accessed on 20 September 2020).

31 Paksat-1 reaches orbital position, https://www.dawn.com/news/75180 (accessed on 10 September 2020).

32 *Ibid.*

33 "Submission by the Administration of Pakistan Requesting the Extension of the Regulatory Time Limit to Bring Into Use the Frequency Assignments to the Paksat-MM1-38.2E-KA AND PAKSAT-MM1-38.2E-FSS SATELLITE NETWORKS" (Radio Regulations Board, Geneva, October 27, 2020).

NCA. Once released, a well formulated space policy of Pakistan will lead to the adoption of space legislation.

There is difference between 'program' and 'policy'; programs can be of short-term or long-term interventions that bring the improvements in the wake of challenges and on the other hand, policies are frameworks leading to legislation and regulation. There is a bi-directional relationship between space 'policy' and space 'law'. In the following section, rationale for space legislation has been discussed and it provides the answer to the question that why it is important for Pakistan to legislate national space law?

4. Rationale for Space Legislation

Each state regulates space activities for its own specific national reasons. There are various reasons for Pakistan to initiate national space legislation. The most important reason and one common basis is a state's international responsibility for national activities in outer space.

In international space law, private entities have been encouraged to get involved in outer space activities to a great extent. At national level, while formulating the particularities and policies of commercialization and privatization of space activities, every spacefaring nation is entitled to protect its public interest. The involvement of private enterprises requires a space dedicated legislation.

National space legislation should provide the most comprehensive, transparent and effective instrument to implement on a domestic level vis-a-vis private entities the state's international legal obligations arising from the space treaties. In this regard, the most relevant treaties are the Outer Space Treaty (OST) 1967, the Liability Convention 1972, and the Registration Convention 1975. A fundamental duty exists under Article VI of the OST to provide for authorization and continuing supervision of private space activities. Some form of authorization and supervision are left to the State concerned to be incorporated into a licensing regime as part of a national space law.[34]

A strong incentive arises from Article VII of the OST and the Liability Convention to arrange domestically for liability arrangements as between the State and private entities concerned in order to deal with the possibility of States being held liable to pay compensation for damage caused by relevant categories of private space activities and to provide for a mechanism ensuring reimbursement to the States up to the desired level. This provision directs an effective mechanism for national licensing system. In this regard, insurance for relevant licensed company can also be ensured through national space legislation.

34 Ram S. Jakhu, National Regulation of Space Activities. Space Regulations Library Series, 5. Dordrecht: Springer, 2010.

Under Article VIII of the OST and the Registration Convention, States are obliged to establish a national registry for relevant space objects to ensure jurisdiction and control over such space objects and the operators thereof. States should also adopt national space legislation for the purpose of monitoring and controlling space activities as to their national effects. For example, the space treaties deal with legal effects of private space activities only if these have consequences beyond the borders of national jurisdiction. The Liability Convention only deals with cases of 'international' liability, that is liability for damage caused by the space object of a launching State or its citizens or entities to another State or its citizens or entities. Space object may cause damage to citizens and entities of the launching State itself, such kind of situation is not covered by the Liability Convention, national space law can deal with such kind of national issues.[35]

For public private partnership and to develop the interest of private sector, States may offer incentives in areas of scientific research and development, financing, taxation and advantageous liability and insurance. Domestic legislation thus presents a possibility for States to encourage private enterprises to participate in space activities. Comprehensive system of licensing at domestic level is considered the centrepiece of any national space law.[36]

International space law obliges States to require their private companies to seek authorization and remain subject to supervision by a registering state. This obligation may entail the establishment of appropriate legal regulation and control over private entities under their national jurisdiction. A well-formulated space policy will help to determine the national requirement for legislation and the degree of regulation of its private sector for fulfillment of State's international responsibility.

5. Incorporation and Implementation of International Treaties

Pakistan has ratified all five International space treaties. The regulatory aspect of these space treaties is already being followed. The ratification of international treaties also requires transforming lawmaking provisions of these treaties into in domestic laws through federal legislative process. In Pakistan, it is the domestic constitutional framework that determines the degree to which international law is applied in any given circumstance. International law is a part of domestic legal system that determines to what extent international legal principles will be relevant for its citizens and private entities.

35 Frans von der Dunk, "Current and Future Development of National Space Law and Policy" (2005). Space, Cyber, and Telecommunications Law Program Faculty Publications. 12. https://digitalcommons.unl.edu/spacelaw/12.

36 *Ibid.*

The legal system of Pakistan is based on common law tradition; thus, it follows adoptionist approach in respect of customary international law and transformationist in respect of international conventions.[37] Therefore, international treaties are implemented through national law enacted by National Assembly. The process of legislation is mandatory to implement an international treaty for private rights. The federal government has exclusively international personality in a sense that it can bind all provinces to an international agreement.

In terms of enforcement of international legal rules, the judicial system of Pakistan maintains "dualist" position. Pakistan's Judicial system appears to relate to by the fact that this body of law is not made through national legislative process but rather appears to be executive-made law or order. The Legislative branch of the government through the elected legislators transform lawmaking provisions of the treaty into domestic laws. This leads to a logical conclusion that international space law conventions have no legal force unless these have been incorporated into domestic law.[38]

The Supreme Court of Pakistan in its judgment in the case of Société Générale de Surveillance S.A. v. Pakistan, through Secretary, Ministry of Finance, mentioned "a Treaty unless [it] was incorporated into the laws of the Country by a Statute, the Courts would have no power to enforce treaty rights and obligations arising therefrom at the behest of an individual or State."[39] Moreover, according to the Article 175(2) of the Constitution of Pakistan, no court can exercise jurisdiction on the matters which have not been incorporated into domestic law.

It has been argued that there is no room for space related legislation under federal Government because the term 'space' has not been mentioned in the federal legislative list.[40] The argument can be refuted, as outer space is part of legislative list through serial no. 58 of federal legislative list. This specific entry provides, "Matters which under the Constitution are within the legislative competence of Majlis- e-Shoora (Parliament) or relate to the Federation."[41] The second part of entry 58 "or relate to the Federation" has its own independent significance. The importance of the second part is that

37 John H. Jackson, "Status of Treaties in Domestic Legal Systems: A Policy Analysis." The American Journal of International Law 86, no. 2 (1992): 310–40.

38 Dinah Shelton, International Law and Domestic Legal Systems: Incorporation, Transformation, and Persuasion. Oxford: Oxford University Press, 2011.

39 SGS Société Générale de Surveillance S.A. v. Islamic Republic of Pakistan, ICSID Case No. ARB/01/13, Judgment by the Supreme Court of Pakistan, https://www.italaw.com/cases/1009 (accessed on 20 July 2020).

40 Shah Murad, "Regulation of Space Activities," January 1, 2012, https://www.dawn.com/news/684838/regulation-of-space-activities?fbclid=IwAR0AipiDWEPfscI4G37DmSAiCpcrbh03126I7zqS_PjIpI1s4h1ZvijMN88 (accessed on 20 September 2020).

41 Federal Legislative List, http://www.pakistani.org/pakistan/constitution/schedules/schedule4.html (accessed on 20 September 2020).

apart from any matter that falls within the legislative competence of the Parliament, there can also be a matter which may relate to the Federation and therefore the Parliament may decide to legislate on such matter as well. Thus, the second part of the entry no. 58 empowers the Parliament to legislate on a matter which though may not be specifically enumerated in any entry of the federal legislative list but in some way the matter may relate to the Federation.[42]

Outer space activities have been a federal issue and according to SUPARCO ordinance 1981[43] federal government has been empowered to make rules and the Commission has power to make regulations through DCC. According to Article 97 of the Constitution of Pakistan gives the rights to Parliament to adopt laws.[44] Without the implementation of international treaties, domestic law of Pakistan is the supreme law of the land.

In comparison with monist form of constitutions the legislative process in dualist countries like Pakistan the matter become complex and most important lawmaking treaties need legislative implementation. This requirement is the result of separation of powers. The executive in exercise of power may ratify a treaty; however, it cannot change or make new law without being authorized to do so. That is the responsibility of the legislative body. As a result, a treaty ratified by the federal government will bind Pakistan as a country, but its provisions cannot affect international law until they have been implemented domestically.

The process of treaty implementation in Pakistan clearly follows the doctrine of transformation. Some treaties raise novel regulatory issues such as Registration Convention was ratified by in 1986. Permanent Mission of Pakistan to the United Nations in accordance with article IV of this convention registers all its space objects in United Nations Office for Outer Space Affairs. Thus, in this regard, the regulatory aspects of radiocommunication and utilization of orbital slots has also been adopted.

6. Conclusion: Challenges and Recommendations

Pakistan commenced its space program in 1961 which was not far from the initiation of first space age with the launch of the world's first artificial satellite, Sputnik 1 on October 4, 1957. Within couple of years of establishment of SUPARCO, Pakistan achieved remarkable progress.

To make outer space a lucrative sector for civil and commercial utilization, Pakistan needs to bring reforms in its current national space regime. Keeping in mind the confusion over form of government, political will and priority,

42 This argument has been made after consulting Dr. Joseph Wilson, (former) Chairman of the Competition Commission of Pakistan (CCP).

43 SUPARCO Ordinance No. XX of 1981, www.suparco.gov.pk.

44 The Constitution of Islamic Republic of Pakistan.

current structure of national space regime, as well as dualist nature of Pakistan's Constitution make it a daunting task to legislate national space law. Though in a third consecutive political set an ambitious space vision 2040 and 2047 (national space programs) has formulated and approved by respective the Prime Ministers yet there is no official document publicly available that can be considered to a national space policy of Pakistan.

The biggest challenge for national space legislation will require restructuring of the chain of command of SUPARCO. Provision 21 of NCA Act 2010, overrides all other laws and amendment contrary it. Its mean that any reform, specific to SUPARCO, for the purpose of national space legislation will require amendment in the NCA Act.

Moreover, the NCA used to be chaired by President of Pakistan and the Prime Minister as vice-chairman. The18th amendment to the Constitution restored the powers of Prime Minister and made him the Chairman of the NCA yet many provisions in the NCA act were left un-amended. For example, the procedure to appoint the Chairman of the SUPARCO is still by the President of Pakistan through the recommendation of Joint Chief of Staff Committee (CJCSC).

The placement of SUPARCO under NCA and SPD gives the impression of the Commission as a military space entity rather civil space agency. Military space agency remains useful in establishing defence cooperation. Because of the SUPACRO's military chain of decision-making, it maybe the reason that World Meteorological Organization (WMO) does not mention SUPARCO in its list of space agencies. Therefore, it is recommended that a separate military space agency can be operationalized and SUPARCO can be placed under combination of relevant Ministries or SUPARCO may be placed directly under the Prime Minster of Pakistan.

To avail the benefits of full spectrum of space technology, it is also suggested that prominent national scientists and engineers should take the lead of SUPARCO to make outer space a lucrative sector and to encourage public private partnerships. By doing so Pakistan will be in a better position to integrate with other civilian space agencies and can also avoid being subject to military sanctions. There is a need to shift traditional approach of national security to non-traditional security threats and outer space technology is a pivotal part of it.

The issue of overlapping powers between NCA, legislative branch and judiciary is reflected when Supreme Court of Pakistan observed that "unaccounted exercise of unfettered powers was dangerous and devastating for an institution like the NCA.[45] In the same direction the Senate Standing Committee on Defence mentions in the NCA (amendment) Bill 2016 as:

45 Senate body passes NCA amendment bill, https://www.dawn.com/news/1292980 (accessed on 20 September 2020).

> Provided that notwithstanding anything contained in any judgment decree, order, direction or declaration of any Court including the Supreme Court of Pakistan or in this Act or in any other law for the time being in force, the rules, instructions or orders already made, or which may be made, in respect of the employees and strategic organizations of the Authority shall be nonstatutory unless approved by the Federal Government and Published in the Official Gazette of Pakistan.[46]

For national space legislation, areas need to be focussed are registration, licensing, safety, cooperation, technology development and transfer, liability, insurance, and issues of international responsibility in carrying out space activities. A well-formulated space policy and legislation should be a product of public policy. Therefore, in the process of space legislation all stakeholders needs to be involved.

46 *Ibid.*