INDIA-CENTRAL ASIA DEFENCE COOPERATION, 1992-2016

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DECLARATION

I declare that the thesis titled "INDIA-CENTRAL ASIA DEFENC COOPERATION, 1992-2016" submitted by me for the award of the degree Doctor of Philosophy of Jawaharlal Nehru University is my own work. The thes has not been submitted for any other degree of this University or any oth University.

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CERTIFICATE

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[1] Chai Pe Charcha is a Hindi Phrase for “Discussion at Tea”

CONTENTS

ABBREVIATIONS

ACV	Armoured Combat Vehicle
AD	Air Defence
Af-Pak	Afghanistan-Pakistan
AFSPA	Armed Forces Special Powers Act
AFSV	Armoured Fire Support Vehicle
AHMBP JSC	Almaty Heavy Machine Building Plant" Joint Stock Company
ALH	Advanced Light Helicopter
AMCDRR	Asian Ministerial Conference on Disaster Risk Reduction
APC	Armoured Personnel Carrier
APV	Armoured Patrol Vehicle
ATGM	Anti Tank Guided Missile
BDL	Bharat Dynamics Limited
BEL	Bharat Electronic Limited
BMP	Boyevaya Mashina Pekhoty (means Infantry Fighting Vehicle)
BRDM	Boyavaya RazvedyvateInaya Dozornaya Mashir (a military reconnaissance vehicle)
BSF	Border Security Force
BTR	BroneTransportyor
CAEC	Central Asian Economic Community
CARs	Central Asian Republics
CAREC	Central Asian Regional Economic Cooperation Program
CDM	College of Defence Management
CERT-In	Indian Computer Emergency Response Team
CENTCOM	Central Commands
CENTRASBAT	Central Asian Battalion
CIAS	Centre for Inner Asian Studies
CIS	Commonwealth of Independence States
CMDS	Counter Measure Dispensation System
CNPC	China National Petroleum Corporation
COSC	Chiefs of Staff Committee
CrPC	Code of the Criminal Procedure
CRPF	Central Reserve Police Force
CRRF	Collective Rapid Reaction Force
CST	Collective Security Treaty
CSTO	Collective Security Treaty Organisation
DoD	Department of Defence
DPP	Defence Procurement Policy
DPSUs	Defence Public Sector Units
DRDO	Defence Research and Development Organisation
DSSC	Defence Services Staff College
EME	Electronic and Mechanical Engineering
ENC	Eastern Naval Command
EO	Electro-Optic

EU	European Union
EWS	Electronic Warfare Systems
FDI	Foreign Direct Investment
FMF	Foreign Military Financing
GBAO	Gorno-Badakhshan Autonomous Oblast
GDP	Gross Domestic Product
GRSE	Garden Reach Shipbuilders and Engineers
GWOT	Global War on Terror
HADR	Humanitarian Assistance and Disaster Relief
HAL	Hindustan Aeronautics Limited
HSL	Hindustan Shipyard Limited
HQ IDS	Headquarters Integrated Defence Staff
HUMMWV	High Mobility Multipurpose Wheeled Vehicle
HuT	Hizb-ut-Tehrir
IA	Indian Army
IAF	Indian Air Force
ICC	Intergovernmental Cooperation Committee
ICVs	Infantry Combat Vehicles
IDSA	Institute of Defence Studies and Analysis
IFV	Infantry Fighting Vehicle
IGA	Inter Governmental Agreement
IGMDP	Integrated Guided Missile Development Program
IMET	International Military Education and Training
IMU	Islamic Movement of Uzbekistan
IN	Indian Navy
INSTC	International North South Transportation Corridor
IOFs	Indian Ordnance Factories
IS	Islamic State
ISAF	International Security Assistance Force
ISC	Information Security Centre (ISC
ISIL	Islamic State of Iraq and the Levant
ISKP	Islamic State Khorasan Province
IT	Information Technology
ITBP	Indian Tibetan Border Police
ITEC	Indian Technical and Economic Cooperation
IWEP	Institute of World Economy and Politics
JNU	Jawahar Lal Nehru University
JSC	Joint Stock Company
JV	Joint Venture
JWG	Joint Working Group
KADEX	Kazakhstan Defence Expo
KADF	Kazakhstan Air Defence Force
KAZBRIG	Kazakhstan Peacekeeping Training Centre
KISS	Kazakhstan Institute of Strategic Research
K2	Karashi-Khanabad

KMU	KarazhanbasMunai
KZT	Kazakh Tenge (Currency)
L&T	Larsen and Toubro
LCA	Light Combat Aircraft
LCH	Light Combat Helicopter
LUH	Light Utility Helicopter
LWE	Left Wing Extremism
MALE	Medium Altitude Long Endurance
MBRLs	Multi Barrel Rocket Launchers
MDL	Mazagaon Dock Shipbuilders Limited
MEA	Ministry of External Affairs
MHA	Ministry of Home Affairs
MIDHANI	Mishra Dhatu Nigam Limited
MINURSO	United Nations Mission for Referendum in Western Sahara
MoD	Ministry of Defence
MoU	Memorandum of Understanding
MRAPs	Mine-Resistant Ambush Protected Vehicles
MRL	Multiple Rocket Launcher
MRO	Maintenance Repair and Overhaul
MTDP	Mid Term Development Plan
NAM	Non Aligned Movement
NATO	North Atlantic Treaty Organisation
NBC	Nuclear Biological and Chemical
NC	National Company
NCC	National Cadets Corps
NDA	National Defence Academy
NDC	National Defence College
NDS	National Development Strategy
NGO	Non Governmental Organisation
NSC	National Security Concept
[NSCN (IM)]	National Socialist Council of Nagaland (Isak-Muivah),
[NSCN (K)	National Socialist Council of Nagaland (Khaplang)
[NSCN (K/K)]	National Socialist Council of Nagalim (Kaplang-Kitovi)
OEM	Original Equipment Manufacturer
OFs	Ordnance Factories
OIC	Organisation of Islamic Corporation
OMG	OzenMunaiGaz
ONGC	Oil and Natural Gas Corporation
OVL	ONGC Videsh Limited
PfP	Partnership for Peace Program
POK	Pakistan Occupied Kashmir
R&D	Research and Development
SAM	Surface to Air Missile
SBS	State Border Service
SCO	Shanghai Cooperation Organisation

SDG	Sustainable Development Goals
SIS	School of International Studies
SSM	Surface to Surface Missile
STS	Semipalatinsk Test Site
TAPI	Turkmenistan Afghanistan Pakistan India
TAPiCH or TAPO	Chkalov Tashkent Aircraft Association or Tashkent Aviation Production Association
TRACECA	Transport Corridor between Countries of Europe-Caucasus Asia
TTP	Tehrek-i-Taliban Pakistan
WNC	Western Naval Command
UAV	Unmanned Aerial Vehicle
UN	United Nations
UNDAF	United Nations Development Assistance Framework
UNOCI	United Nations Operation in Côte d'Ivoire (Ivory Coast)
UUV	Unmanned Underwater Vehicle
US	United States
USA	United States of America
USD	United States Dollar
USSR	Union of Soviet Socialist Republics
UZS	Uzbek Currency Soum
VA	Vital Area
VCAS	Vice Chief of Air Staff
VP	Vital Point
ZIL	Zavodimeni Likhachyova (name of a Heavy Transport Vehicle)

ABSTRACT

Defence cooperation among nations comprising cooperation between their defence forces and defence industries help in securing their interests as well as in building strategic relations. The five Central Asian Republics (CARs) of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan coming into existence after the break up of Soviet Union in 1991 and being located in the neighbourhood of China, Pakistan and Russia occupied a prominent position in India's foreign policy and strategic calculations. Energy remained a key area of cooperation between India and CARs; however, defence cooperation among them remained an under-researched subject. The study commenced with aim to answer a few questions including what were the security challenges, capabilities of defence forces and defence industries of India and CARs. Also, how external players and multilateral forums influenced security dynamics of Central Asian Region. The study attempts to test hypothesis that civilisational links, complementary capabilities of defence forces and defence industries, terrorism and other unconventional threats stimulated establishing of defence cooperation between India and CARs through bilateral and multi-lateral organisations like SCO. The study examined extent and pattern of defence cooperation between India and five CARs between 1992 and 2016. The study also analysed pattern of defence cooperation of five CARs' with three key powers of the period, i.e. China, Russia and the US to ascertain scope for India in establishing defence cooperation with CARs.

Indian defence forces having fought wars with its two neighbours, undertaken counter terrorism, possessing experience of guarding large and varied borders, and counter insurgency operations had evolved as professional entities. On the other hand, Indian defence industry faced challenges in transforming its prototypes into operational products in the past, which led to Indian defence forces becoming dependent on foreign OEMs for their defence equipment requirements. Indian government's pro-active policy initiatives especially 'Make in India' and 'AtmaNirbhar Bharat' (Self-reliant India) strengthened its domestic industry. They stimulated transformation of number of ongoing air, land and naval systems development projects into viable products. As a result, Indian industry's ability to supply defence equipment to domestic and international customers witnessed a signigicant increase towards the end of the study.

Amongst the CARs, Kazakhstan and Uzbekistan inherited significant defence forces and defence institutions, which needed to be strengthened and reorientated to meet the requirments of

independent nations. The defence forces of remaining three CARs were very small, which necessitated that they established defence cooperation with other countries bilaterally as well as through multilateral institutions. On the other hand, size of remnants of Soviet-era defence industry inherited by the five CARs differed; however, all of them struggled to revive them due to various reasons. Soviet-era defence industry inherited by Uzbekistan and Kyrgyzstan became irrelevant while Kazakhstan re-oriented its defence industry by establishing collaborations and joint ventures to stimulate domestic manufacturing and MRO.

The three major powers, i.e., Russia, China and the US, were the key players in the defence cooperation dynamics of the Central Asian region, who established defence cooperation with CARs through bilateral as well as multilateral forums. Russia's influence over five CARs was varied despite being the most powerful former Soviet state. On one hand, Russia shared maintained close and wide ranging defence cooperation with Tajikistan, Kyrgyzstan and Kazakhstan; while on the other, its defence cooperation with Turkmenistan and Uzbekistan was insignificant. China was initially cautious in establishing defence cooperation with CAR, however, in due course; it became a significant player in the region. It was pragmatic in establishing defence cooperation with CARs bilaterally as well as through SCO. It was able to establish bring all CARs in SCO except Turkmenistan due to its policy of permanent neutrality. However, it was able to establish close bilateral defence cooperation with Turkmenistan towards the end of the study. The US established varying degree of defence cooperation with CARs to support its war on terror as well as establish a foothold in the region in the back yard of Russia. It utilised military bases of Kyrgyzstan and Uzbekistan; however, its defence relations with them had witnessed ups and downs. As a whole, the five CARs were able to establish defence cooperation with other countries.

Indian defence forces established a fair degree of cooperation with defence forces of CARs comprising training, joint exercises and other activities facilitating capability building of defence forces of CARs. India's defence industrial cooperation with CARs was varied but underleveraged. India imported limited defence equipment from Kazakhstan, Kyrgyzstan and Uzbekistan and no defence equipment from Turkmenistan and Tajikistan. The comparison of pattern of defence cooperation of CARs with other global players vis-a-vis India indicated that extent of defence cooperation between India and CARs did not achieve its full potential as other countries were able to establish broader defence cooperation including defence-industrial

cooperation with CARs. The absence of land connectivity posed challenges for India in enhancing cooperation with CARs including in the defence domain. India's pro-active policy changes had strengthened its domestic defence industry, which lacked experience in exporting defence products. India was looking to export its products, establish collaborators/ joint ventures in design, development, testing and manufacturing and establish supply chains for its products, which could encourage some of the Central Asian republics to become partners.

The level of defence cooperation comprising cooperation between defence forces and defence industries of India and five CARs had shown an upward trend during the last few years. There still existed untapped potential for enhancing cooperation between their defence forces and defence industries to a higher level; however, Indian defence industry would need to make extra effort for establishing and strengthening defence and defence industrial collaborations with CARs.

Chapter-1

Introduction

Defence cooperation helps nations in addressing their security challenges as well as in building strategic relationships. India and newly established five Central Asian Republics (CARs) of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan possessed common interests, complementary capabilities and potential for cooperation among their defence forces and defence industries. To understand the scope and extent of defence cooperation between them an elementary understanding of political, economic and security imperatives is essential.

The five CARs were among the fifteen countries that were formed after the disintegration of Soviet Union in 1991. They were strategically located in the heart of Asia with the Caspian Sea to the west, China to the east, Russia to the north, and Afghanistan and Iran to the south. Their proximity to volatile Afghanistan-Pakistan, availability of natural resources and endeavours of China, Russia and Western powers to establish influence in the region through economic, military and energy cooperation gave them a special place in geostrategic calculations.

The swift disintegration of Soviet Union gave little time to CARs to prepare for independence. They needed to establish administrative, governing and military institutions for functioning as independent nations. The regional and global powers were keen to gain access to their minerals, energy and other resources as well as establish mutually beneficial collaborations. The three leading powers of the world of the era, i.e. China, the United States (US) and Union of Soviet Socialist Republics (USSR) had a special interest in establishing multifaced cooperation with the five CARs through bilateral and multilateral forums. Amongst these, Russia being the biggest post-Soviet era country made an endeavour to keep newly formed former Soviet republics united to prevent or at least minimise the influence of external powers in the region. China aiming to establish itself as a global power, made special endeavours in establishing its

presence in the region. The US being the sole superpower was interested in preventing the proliferation of Soviet-era weapons of mass destruction, discourage formation of unfavourable regional military groups and establish a foothold in the region through bilateral and multilateral collaborations.

India viewed newly formed Central Asia as its extended neighbourhood and its civilisational links and changed realities in the post-Soviet era provided the foundation in establishing multifaceted cooperation with the CARs. Central Asia with its rich resources and geostrategic position close to Afghanistan-Pakistan could play a significant role in meeting the energy, trade and security requirements of India. There was also convergence of interests to establish cooperation among their defence forces and defence industries. The disintegration of Soviet Union had disrupted Maintenance, Repair and Overhaul (MRO) support system of India's large Soviet-era defence equipment inventory while CARs housed some elements of Soviet-era defence equipment supply chains. Also, CARs needed to establish defence forces institutions while Indian defence forces possessing enormous experience in undertaking combat and counter-terrorism operations had grown into professional defence forces. Defence cooperation comprising cooperation among their defence forces and defence industries had the potential to become an important pillar of their multifaceted engagements.

The study examines the pattern and extent of defence cooperation between India and five CARs between 1992 and 2016. To understand the scope for defence cooperation between them, it examines the composition, capabilities and limitations of their respective defence forces and defence industries to assess the potential for establishing cooperation among them. The study also examines defence engagement between five CARs and three key powers of the period, i.e., China, Russia and the USA through bilateral and multilateral mechanisms to understand defence cooperation dynamics of the region. The pattern of their defence cooperation would help in understanding potential for India to establish defence cooperation

To begin with, the study examines historical links, political set-ups, economies, geographies, religions, demographic distribution of population and security challenges faced by

India and CARs, which would provide the background for analysing the scope and extent of defence cooperation them.

Understanding Central Asian Republics

The Central Asian region had diverse geographical features comprising mountains, deserts, rivers and plain steppe and their understanding would help in gauging the availability of resources as well as economic challenges (Steppe, 2017). Also, understanding of type of terrain, strength and capability of military and border security forces was necessary to understand the extent of security challenges faced by the five Central Asian Republics. The two rivers, i.e. Amu Darya (1437 Km) and Syr Darya (2137 Km) were not only main sources of water but also had the potential to create conflicts in the water deficit steppe region. The Amu Darya originates in the Hindu Kush mountains in the east and moves westwards towards plain areas and passes through Afghanistan, Turkmenistan, enters Uzbekistan and then flows into the Aral Sea. The Syr Darya originates in the Tian Shen mountains towards the east of Kyrgyzstan, moves westwards and passes through Tajikistan, Uzbekistan and Kazakhstan before flowing into the Aral Sea ("Aral Sea", 2013).

The region's most fertile land is located in the Ferghana valley, which is 370 Km long and 190 km wide. It is located in the North-East of Uzbekistan and borders Tajikistan and Kyrgyzstan. This area is suitable for agriculture and has the highest population density in the Central Asian region (Uzbekistan Map, 2017). The availability of water and fertile land had a predominant influence on irrigation pattern, population density, economic wellbeing and impact on security situation of the region. The availability of water in Central Asian region was declining and the area faced water shortage, which led to inter-state tensions especially between Kyrgyzstan and Uzbekistan.

The transformation of CARs in independent countries had their own challenges. The transition in Uzbekistan, Kazakhstan and Turkmenistan was relatively smooth in which political power was transferred to former Soviet communist party leaders, who remained in power for a long time. However, Tajikistan faced bitter civil war till 1997 while Kyrgyzstan battled with political instability as its two presidents were overthrown between 1991 and 2000. Also, newly formed CARs had to establish governance institutions and the ruling elites retained critical

powers with them while creating political, bureaucratic and judicial institutions in their respective countries. The redrawing of boundaries and economic realities post-independence era brought new opportunities and challenges.

Kazakhstan having the biggest economy and the largest geographical area among the five Central Asian Republics (CARs) became an independent state on 16 December 1991. Its President was the head of state and its Parliament consisted of two Chambers, i.e. Senate and Majilis. Senate had two deputies representing each region with 15 deputies being appointed by the President while Majilis consisted of 107 deputies, out of which, the Assembly of the People of Kazakhstan elected nine deputies. There were three parties in the Majilis, i.e. "Nur Otan", People's Democratic Party, "Ak zhol" Democratic Party of Kazakhstan and Communist People's Party of Kazakhstan. Nursultan Abishevich Nazarbayev was first elected Chairman of the Supreme Council in the erstwhile Soviet Socialist Republic of Kazakhstan in April 1990, and he later became the President of independent Kazakhstan in 1991 (Bowyer, 2008).

The pattern of governance in most Central Asian countries was similar and like most other Central Asian leaders, Nazarbayev allowed himself unlimited terms as the President of independent Kazakhstan. In a political experiment in 2002, its parliament adopted a law, which required political parties to have a minimum of 50,000 members and be in existence for six months, to be recognized by Ministry of Justice as the political party. As a result, number of registered parties had increased to eleven (Kazakhstan Political Parties, 2016). Thereafter, the term of President was shortened from seven years to five years through a constitutional amendment in 2007. The last election for the Senate was held in 2014 (47 member Senate had a six-year term with half of the deputies were elected every three years), President in 2015 (five-year term), and Majilis in 2016 (five-year term) (TWB, Kazakhstan 2018). Bowyer (2008) observed that despite the multi-party system, Nur-Otan or "Fatherland's Ray of Hope" party maintained an overwhelming majority in all parliamentary elections and President maintained a firm hold in the government with his daughter Dariga N. Nazarbayeva occupying the post of Deputy of the Senate, Parliament and Chairwomen of the Committee on International Affairs, Defence and Security (Kazakhstan President, 2018).

The population of Kazakhstan was about 17 million in 2016. As per 2009 national census, ethnic profile of Kazakhstan was diverse comprising Kazakhs– 63.07 %, Russian- 23.7 %, Uzbeks- 2.85 %, Ukrainians- 2.08 %, the Uighurs- 1.4 %, Tatars – 1.28 %, the Germans- 1.11 % and others- 4.51 %. Geographically, it was the largest country in Central Asia and had 13,200 km border spanning 7591 Km with Russia in the north, 1783 Km with China in the East, and 1242 Km, 2351 Km and 426 Km with Kyrgyzstan, Uzbekistan and Turkmenistan respectively in the south. It had little fertile land, and its territory comprised 44 % dessert, 14 % semi-desserts and 26 % steppe and 5.5 % forests. Kazakhstan was the farthest from the Afghanistan-Pakistan (Af-Pak) region and least affected by terrorism emanating from this region (The World Bank, 2018).

Kazakhstan possessed energy resources, and its position in holding gas, coal and oil reserves was 2nd, 8th and 9th respectively in the world. Also, oil-rich Caspian Sea was located to the southwest of the country. Kazakhstan introduced "Nurly Zhol" policy in 2014 intending to improve connectivity between different regions of Kazakhstan (Kazakhstan President, 2018). Its economy was the strongest amongst the five Central Asian nations. It's Gross Domestic Product (GDP) had increased from USD 24.9 billion in 1992 to USD 236.6 billion in 2013 before reducing to USD 137.2 billion in 2016 (The World Bank, 2018).

Kyrgyzstan, a hilly Central Asian nation, located in the northeast of Central Asia had faced several political upheavals. It has Kazakhstan to the north, Uzbekistan to west, Tajikistan to southwest and China to its southeast. Kyrgyzstan was an independent state for a short period after the Bolshevik Revolution in 1917 till its empire was toppled and it joined the Union of Soviet Socialist Republic (USSR) in 1924. It became an independent nation on 31 August 1991 (Kyrgyzstan, 2016). Kyrgyzstan had a turbulent political history as it witnessed the regime change twice since 1991. Aksar Akayev, the President since 1991, was removed in the 'Tulip Revolution' on 24 March 2005, and replaced by revolution leader Kurumanbek Bekiyev. However, he too flew out of the country on 7 April 2010 in what was termed as the second revolution or 'April Revolution' due to deteriorating law and order situation and ethnic tensions in the country. Thereafter, Rozan Otunbayeva headed the interim government; however, she was

criticised for her poor governance record (Putz, 2017). The country's current constitution was adopted through a referendum in June 2010. Almazbek Atambayev won the elections to become President in October 2011 (Kyrgyzstan President, 2018)

The country is spread over an area of 900 Km from west to east and 410 km from north to south and 2/3rd of the country has an average elevation of about 2750 meters above mean sea level. Kyrgyzstan like Tajikistan is blessed with abundant water sources. The Syr Darya originates from Kyrgyzstan mountains and Kyrgyzstan is home to Issyk-kul, Son-Kul, Chatyr-Kul, Sary-Chalak lakes. It had a population of 6 million comprised of a diverse mix of ethnicities and religions, which was its strength as well as vulnerability (Kyrgyzstan, 2016). Its ethnicity profile consisted of Kyrgyz 73.2 %, Uzbek 14.6 %, Russian 5.8 %, Dungan 1.1 % and the other 5.3 %. About 75 % of its population was Muslim, 20 % Russian Orthodox and 5 % are others.

Its official languages were Kyrgyz and Russian (The World Factbook, 2017). The currency of Kyrgyzstan was 'Som' (About Kyrgyzstan, 2018), and its GDP increased from USD 2.3 billion in 1992 to USD7.4 billion in 2014 before reducing to USD 6.5 billion in 2016 (The World Bank, 2018). On becoming an independent country in 1991, Kyrgyzstan faced socio-economic challenges that were attributed to weak economic condition, corruption, differentiation, criminalisation of the society and lack of market reforms. As a result, almost half of its population started living below the poverty line. After the formation of democratic government, efforts were made to expedite reforms and address some of these challenges (Kyrgyzstan President, 2018). As a whole, Kyrgyzstan with mountainous territory, porous borders, proximity to the volatile Xinjiang region of China in the south-east, Tajikistan in the south-west, diverse ethnic and religious population and weak economic conditions remained vulnerable to terrorist activities.

Tajikistan became an independent state on 09 September 1991 and Emomali Rahmon was officially elected as the head of the government and President during the 16th Session of the Supreme Council (12th convocation) on 16 November 1992. The country adopted the new Constitution on 06 November 1994, which resulted in the formation of Presidential form of

government. In 1999, a referendum was conducted to enhance the powers of the President, which extended the term of the President from five to seven years and provided him enormous powers, which included powers to appoint or remove ministers and state committees, representatives of Tajikistan, amend the constitution, etc. (Tajikistan President, 2018).

Tajikistan, the smallest country amongst five CARs was spread over an area of 700 km from west to east and 350 km from north to south. Its border with neighbouring countries included 1332 Km with Uzbekistan in the west, 987 Km with Kyrgyzstan in the north, 1332 Km with Afghanistan in the south and 494 Km with China in the east. It had ample water sources comprising rivers, lakes and glaciers, out of which rivers accounted for 60 % of the water sources of Central Asia (Tajikistan MFA, 2018). It had Pamir highlands in the East-South-East, Ferghana valley in the North and Badakhshan mountainous region comprising Vakhsh and Hissor valleys in the South West. It's 93 % mountainous territory and long and porous borders with Afghanistan created enormous challenges for its defence forces in guarding against terrorist infiltration and external threats (Tajikistan MFA, 2018).

The population of Tajikistan was 8.7 million in 2016. According to CIA 2010 estimates, Tajiks accounted for 84.3 %, Uzbeks 13.8 % and others 2 % of the total population. Its official languages were Tajik and Russian. Tajikistan population was predominantly Muslim with 85 % Sunni, 5 % Shia and 10 % others. Its literacy rate was very high at 99 % (TWF Tajikistan, 2018). The economy of Tajikistan was the smallest in the region and it faced economic challenges including a decline in economic indicators, unemployment, a decrease in per capita income and high inflation (Tajikistan President, 2018).

To revitalise its economy and create jobs, it enacted a law on public property privatisation in 1997 and introduced limited free-market reforms involving privatisation of 11410 small, and 1367 medium and large enterprises by 2015, reduction of taxes from 21 to nine and number of permits from 650 to 74 by 2016 (Economy. Tajikistan, 2018); however, these reforms were criticised as government functionaries retained control over businesses and corruption continued to be high. The GDP of Tajikistan was one of the lowest in the region and it

had witnessed slow growth with GDP increasing from USD 1.9 billion in 1992 to USD 9.2 billion in 2014 before decreasing to USD 6.9 billion in 2016 (The World Bank, 2018). Tajikistan, unlike other CARs, had a very low level of employment opportunities. However, the poverty rate had declined from 83 % in 2000 to 30.3 % in 2016 (TWB, Tajikistan 2018).

According to the UN, Tajikistan with its economy isolated from the global economy, high state control and excessive regulations was ranked 128th position in the ease of doing business. Its one million migrant population working in Russia, Kazakhstan and other CIS countries contributed to 47 % of its GDP. Its reliance on remittances from migrant labour, limited exports and dependence on import of food, fuel and consumer products made it vulnerable to external exploitation. The position of Tajikistan in the corruption perception index was 136th, which was behind Kazakhstan and Kyrgyzstan but above Uzbekistan and Turkmenistan. Also, its weak banking sector, high level of systematic corruption, weak administration and fragile security set up acted as a deterrence to foreign investments and hampered economic progress of the country.

It had set three strategic goals of achieving self-reliance in energy, food security and improvement in connectivity. It collaborated with international and domestic partners and initiated oil and gas exploration projects, set up hydroelectric power stations and took measures to improve agricultural production. Tajikistan launched National Development Strategy (NDS)-2016-2030 and Mid Term Development Programme (MTDP) – 2016-2020 under the United Nations Development Assistance Framework (UNDAF) to achieve Sustainable Development Goals (SDGs) (UN in Tajikistan, 2018). Tajikistan was also a member of the Central Asian Regional Economic Cooperation (CAREC) Program and was aiming to strengthen its trade relations with other countries of the region.[2]

[2] There are 11 member countries in CAREC comprising Afghanistan, Azerbaijan, People's Republic of China, Georgia, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan.

Tajikistan like most other landlocked Central Asian republics viewed itself as a transit country for connecting South Asian countries like Afghanistan, Pakistan, China to Europe. However, the condition of its roads till 1997 was poor with only 43 % of national and 20 % of local roads being paved. Therefore, several connectivity projects were initiated with foreign investments to build an integrated transportation network and connect it with international transportation corridors. This involved construction of highways between Dushanbe – Tursunzoda (to Uzbekistan border), Dushanbe –Kulma (to the Chinese border), Dushanbe – Saritosh (to Kyrgyzstan border) and bridges across the Panj River to connect Afghanistan. It was slowly expanding its rail network and an MoU was signed with Turkmenistan for the construction of the Turkmenistan –Afghanistan – Tajikistan railway line. Overall, it had signed transportation agreements with 34 countries (Tajikistan President, 2018). Tajikistan was also a member of the Intergovernmental Commission of Organization of Transport Corridor between countries of Europe-Caucasus-Asia (TRACECA) (Tajikistan MFA, 2018). Tajikistan viewed its transportation networks as the means for mitigating its economic challenges; however, its weak economic condition made it less attractive for investment in infrastructure development and scope of economic engagements remained limited. On the other hand, its geographical location close to volatile Afghanistan made it an important country for regional and global powers, especially from the security dynamics of the region.

Turkmenistan came under the Russian rule for the first time in the late 1800s and became Soviet republic in 1924 after the Bolshevik revolution. It became an independent state on 27 October 1991 with Ashgabat as its capital. It adopted its constitution on 18 May 1992, which was revised on 14 September 2016 (Turkmenistan, 2017). Suparmurat Nyyazow like leaders of other Central Asian Republics was the Communist Party Chief of Turkmen Soviet Socialist Republic under the Soviet Union from 1985 to 1991 before becoming the President of independent Turkmenistan in 1991. He introduced the title ‘Turkmenbashi" (the head of Turkmen) in 1999, which established him as the leader of all Turkmen for life despite criticism by his opponents. After the death of Nyyazow in December 2006, the first multi-candidate elections were held in February 2007. The transition of power was smooth with his deputy cabinet Chairman

Gubanguly Berdimuhamedow becoming the President in 2007 (BBC, 2006). He too retained firm hold over the government and was re-elected as the President in 2012 (Kramer A.E., 2012).

Turkmen is its official language, however, Turkmen, English and Russian are taught in its educational institutions. It is officially a secular state with President being the head of the state as well as supreme commander of its defence forces. Its principal organs of the state are legislative, executive and judiciary. Its Parliament (Majilis) has 125 deputies, which are elected for a term of 5 years (Turkmenistan MFA, 2018).

It's over 6.2 million population is a mix of various ethnicities comprising 85 % Turkmen, 5 % Uzbek, 4 % Russian and 6 % others, which is an asset as well as vulnerability from the point of view of security dynamics. Its national currency Manat came into being on 01 November 1993 and one US Dollar was equivalent to approximately 3.5 Manat in 2016. Its economy was weak at the time of independence; however, it witnessed moderate growth with GDP increasing from United States Dollar (USD) 3.2 billion in 1992 to USD 43.5 billion in 2014 before reducing to USD 36.1 billion in 2016 (TWB, Turkmenistan 2018).

Geographically Turkmenistan is located in the western part of Central Asia and extends 1,100 Km from west to east and 650 km from north to south. Turkmenistan has little fertile land as out of a total area of 49,121 Square Kilometers, 80 % of territory (western and central part) is covered by the Karakum Desert, and 15 % territory consists of hills. It has 1,768 Km coastline along the Caspian Sea to the west and shares 1,148 Km border 804 Km with Iran and Afghanistan respectively in the south, 1,793 Km with Uzbekistan and 413 Km with Kazakhstan in the north (TWB, Turkmenistan 2017).

Turkmenistan has oil reserves, and it established Turkmenistan-China and Turkmenistan-Iran gas pipelines in 2009 to supply natural gas to these two countries. Also, Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline originating from Galkynysh gas field is being built to supply natural gas to Afghanistan, Pakistan and India; however, the progress of Pakistan-India segment of the pipeline has been slow (Turkmenistan MFA, 2018). The delays and associated uncertainty in the operationalisation of 1814 Km TAPI gas pipeline is an example of India's challenges in enhancing engagement with CARs. The USD 10 billion TAPI gas pipeline

despite having been conceived in the 1990s took 20 years to sign the Inter-Governmental Agreement (IGA) in 2010. Thereafter, it took another five years for laying the foundation stone in December 2015. The pipeline still appeared to be a gamble for India, who had to rely on Pakistan to reign in on Taliban and other terror groups to allow it to become operational and give assurance of continuity of supply of gas (TAPI, 2020). India would require close defence cooperation with Turkmenistan and other countries to protect its energy supply routes.

Turkmenistan followed an independent and non-aligned defence cooperation policy as it became the only country in Central Asia to pledge permanent neutrality, which was recognised by the UN through its resolution A/50/80 dated 12 December 1995. This pledge in a way reduced its attractiveness to global players especially the US as well as the regional powers, i.e. Russia and China, who were looking for strategic and military partnerships as well as for establishing military bases (Permanent Neutrality, 1995).

The Republic of Uzbekistan became an independent state on 31 August 1991; however, there was no major change in its political system after independence as erstwhile leaders of Soviet-era retained their control over the governance of the country (Uzbekistan MFA, 2017). It adopted Presidential form of government with Islam Karimov, the first Secretary of Communist Party of erstwhile Uzbek Soviet Socialist Republic, becoming the first President of Independent Uzbekistan, who ruled the country for 27 years (Uzbekistan, 2017). The members of the legislative assembly of Uzbekistan, the Oliy Majilis, comprising two chambers, i.e. the Legislative Chamber (lower chamber with 150 seats) and the Senate (higher chamber with100 seats) were elected, however, President retained control over the process of government formation (Uzbekistan Constitution, 2017). The majority party nominated Prime Minister but the power to appoint Prime Minister, Deputy Prime Minister and other Cabinet Ministers rested with the President (TWB Uzbekistan, 2017). At the same time, continuation of leadership gave stability, which was essential for the newly formed Uzbekistan. Uzbekistan under the leadership of Karimov paid special attention to establishing defence cooperation with Western countries especially the US. After the death of Karimov, Shavkat Mirziyoyev, who was the Prime Minister

of Uzbekistan from 2003-2016 became the President in December 2016 and brought significant changes in the defence cooperation trajectory of the country (TWB Uzbekistan, 2017).

The geographic distribution of Uzbekistan's population of 32 million was uneven (Uzbekistan Population, 2017) with the population density being the highest in areas around the fertile Ferghana valley in the east of the country followed by dense population clusters in the south and the least density was found in the arid, semi-arid central and western parts of the country. Uzbekistan had a diverse mix of ethnicities and religions and its population comprises Uzbeks (80 %), Russian (5.5 %), Tajiks (5 %), Kazaks (3 %), Karakalpak (2.5 %), Tatar (1.5 %) and others (2.5 %). The population predominantly comprised of Muslim (88 %) with Eastern Orthodox (9 %) and others (3 %) being in the minority. The Uzbek leaders followed the erstwhile Soviet policy of keeping religion separate from state to protect their population from radicalisation and spread of fundamentalism. However, uneven distribution of population, unstable Afghanistan and paucity of resources continued to be potential sources of security challenges.

The social and economic factors like a high literacy rate of over 99 %, low unemployment rate of 5.2 % and 14 % people living below the poverty line acted as mitigating factors against the spread of fundamentalism. Some of the factors that indicated economic progress and well being of the people included strength of its currency, size of the economy and its growth rate. According to the World Bank report, the overall GDP of Uzbekistan had shown robust growth in the last decade or so with GDP rising to USD 67.1 billion at the rate of 7.8 % in 2016. The growth was significant especially against the background that its GDP had plummeted to -11.2 % immediately after its independence in 1992. By 2016 Uzbek currency Soum (UZS) was relatively weak as one USD was equivalent to 2,963.7 UZS in 2016 (TWF, Uzbekistan 2017). The rise of the service sector supported by manufacturing and agriculture helped it in reducing the poverty rate. On the other hand, heavy cultivation of cotton adversely impacted the fertility of cultivable land and reduced water level in the underground and other sources in the country. Water could become a potential cause of conflict with neighbouring countries due to scarce water resources in the Central Asian region.

On the economic front, Uzbekistan established trade relations with several countries including Baltic States, China, West Asia, Iran, Turkey, etc. to reduce dependence on Russia. By 2015, it was exporting its products to Switzerland (25.9 %), China (17.6 %), Kazakhstan (14.2 %), Turkey (9.9 %) and Russia (8.4 %) while its import partners included China (20.8 %), Russia (20.8 %), South Korea (11.9 %) and Kazakhstan (10.8 %). China became the largest trading partner leaving behind Russia while India did not appear in the list of its major trading nations (TWF, Uzbekistan 2017). However, slowing down of economy resulted in return of Uzbek migrants from Russia, which was facing an economic crisis due to sanctions imposed by the US in 2016. The resultant unemployment reduced contribution of migrant Uzbek population in the GDP.

Uzbek territory is spread over an area of 1,425 km from west to east with elevation reducing towards the east and 930 km from north to south. About one-fifth of its territory is mountainous comprising the Tian Shan and Pamir mountains in the East and North-East of the country respectively. The remaining four-fifth of the Uzbek territory is plains comprising combination of deserts and large treeless grass steppe (Turan plains), which lie east of Karakum deserts (East of Caspian Sea) and South and South-West of Kyzyl Kum desert. Uzbekistan shared 2356 Km border with Kazakhstan in the north and northwest, 1476 Km with Kyrgyzstan and 1283 km with Tajikistan in the east, and 1831 Km with Turkmenistan in the west and 143 km with Afghanistan to the south (Uzbekistan, MFA, 2017). The tough hilly, porous and large borders with Kyrgyzstan, Turkmenistan, Tajikistan and Afghanistan posed border management challenges as these areas were vulnerable to use by radical elements and terrorists to sneak in, smuggle drugs and undertake subversive activities.

Uzbekistan being a landlocked country was building two trans-Afghanistan road and rail transportation networks to connect with Iranian ports (TWF Uzbekistan, 2017). These were Tashkent-Termez (Uzbekistan)-Mazari Sharif (Afghanistan)-Herat (Afghanistan)-Zahedan (Iran) – Mlak (Iran) –Delaram (Iran) – Chabahar Port (Iran) and Tashkent-Termez (Uzbekistan)-Mazari Sharif (Afghanistan)-Herat (Afghanistan)-Sangan (Iran) – Kerman (Iran) – Bandar Abbas (Iran). The success of these projects was significant for India as it could enhance the viability of

Chabahar port that was being developed jointly by India and Iran as well as strengthen economic cooperation between the two nations.

Internal and External Challenges for CARs

The newly formed CARs faced multiple challenges and threats that depended on varying factors including political instability, geographic location, challenges of guarding tough terrain, religious extremism, terrorism, drugs trade, disputes among clans, inter-state disputes, etc. These challenges and threats were not uniform for all the CARs. Therefore, an endeavor has been made in this section is to examine external and internal threats faced by each of the five Central Asian Republics.

Kazakhstan

Kazakhstan, the biggest CAR geographically had taken measures to establish peace with two powerful neighbours, i.e. Russia and China. Its decision to give up nuclear weapons won the confidence of global powers including the US. Though it did not share border with volatile Afghanistan yet it was concerned about dangers of religious fundamentalism that was prospering in their distant neighbourhood, Pakistan-Afghanistan region. The Muslims in Kazakhstan were predominantly Sunni, who had moderate outlook to religion and people from other religions practised their faith freely in the country. President Nazarbayev made a conscientious effort to propagate separation between religion and politics. Nazarbayev's removed Kazakhstan from the authority of the Muslim Board of Central Asia in 1990, which was established by the USSR. He created a separate Muslim religious body called Muftiate; however, his initiative did not go well with religious leaders as well as with supporters of Soviet regime and an unsuccessful attempt was made by the Allah Political Party to replace first mufti Ratbek Hadji Nysanbayev in December 1991.

Omelicheva (2011) observes that Kazakhstan witnessed lesser Islamic fundamentalism vis-à-vis other CARs. The absence of geographical links with Afghanistan reduced the chances

of having a direct impact of the insurgency. The introduction of steps like barring of the formation of religion-based political parties in the 1993 constitution and declaring Kazakhstan as the secular state in the 1995 constitution was aimed at depoliticising religion. Also, Kazakhstan used to observe spring festival Navruz and summer festival Kymyzuryndyk as public holidays and no public holiday was declared for Islamic festivals till 2006 when the first day of 'Kurban Ait' was declared as a public holiday (Kazakhstan, 2018). However, construction of Nur-Astana Mosque in 2005, "Hazrat Sultan" Mosque in 2012, Kazakhstan-Egyptian Islamic University "Nur", establishing of Madrassas and Kazakhstan becoming a full member of the Organisation of Islamic Cooperation (OIC) indicate Nazarbayev's effort to meet aspirations of religious leaders as well as leverage relations with Islamic Nations for attracting investments. Also, religious bodies were becoming stronger as the number of mosques had grown from 46 in 1989 to 1652 in 2003 due to various factors including the presence of foreign religious missionaries and NGOs (The Spread of Islam, 2018).

Kazakhstan faced a first major terrorist attack on 31 October 2011, when terrorist group Jund al-Khalifah (solders of Caliphate) carried out bombing on government infrastructure and armed policemen in the city of Atyrau located in Western Kazakhstan. It also faced internal disturbances due to migration of workers, economic disparities between local and migrated workers and lack of job security. The labourers of the Kazakhstan KMG's oil-producing subsidiary OzenMunaiGaz (OMG), KarazhanbasMunai (KMU) (a Joint Venture with China located near Akatau) and the Ersai Caspian Contractor LLC located in the Zhanaoen area of western Kazakhstan went on a strike in May 2011. This strike continued for six months and came to an abrupt end after clashes broke out between protesters and police on 16-17 December 2011 leading to the death of 12 workers (EJA, 2011). The internal and external threats were relatively less for Kazakhstan as compared to other CARs however, its leadership systematically prepared its country for potential challenges and focused on building professional defence forces, robust defence industry, participating in joint exercises and improving training for countering such threats.

Kyrgyzstan

Kyrgyzstan's economic condition was weak and lack of jobs made its people vulnerable to exploitation by terrorist organisations. The inter-ethnic disputes clan wars and divide political class added to its challenges. The five political parties represented in the parliament belonged to different regional backgrounds and sharp differences among them created hurdle in the formation of stable government. The ouster of President Kurmanbek Bekyev in 2010 resulted in a transition from the Presidential form of the government to the Parliamentary form of government. However, coalition politics made it difficult to maintain a balance between the aspirations of political leaders from north and south Kyrgyzstan. This led to disagreement and even dissidence among the political rivals. Kamchybek Tashiev, the head of Ata-Jurt party from south Kyrgyzstan, who called for overthrowing the government in 2012 was arrested and put in jail. In the meantime, former President Bekiyev despite being in exile was fancying his chances of returning to the country and joining the political race by leveraging political instability. Frequent political upheavals and rivalry among various clans created challenges in the development of the country as an independent entity.

The Osh, one of the densely populated towns of southern Kyrgyzstan located in the Ferghana valley had large Uzbek population. The competition between Kyrgyz and Uzbek population for gaining control of land in disputed areas turned into conflicts and riots in 2010. Kyrgyzstan's poor economic condition and its dependence on remittances from its workers in Russia made it economically dependent and vulnerable to external exploitation. Also, there were occasions, when workers dissatisfied with job opportunities, launched protests seeking nationalisation of its largest Kumtor gold mines, which were being operated by Canadian companies. Kyrgyzstan's border disputes led to tension with neighbouring countries. In 2013, the dispute in the Uzbek border enclave of Sox almost led to a military confrontation between Uzbekistan and Kyrgyzstan.

The emergence of Islamic State (IS) terror group in Central Asia added to challenges of Kyrgyz defence forces. IS in a video titled "Message to the People of Kyrgyzstan" on 25 August

2015 called Kyrgyz Muslims to move from Kufr (Kyrgyzstan) countries to the land of Islamic State. Kyrgyzstan, despite its de-radicalisation measure, could not prevent migration of its people to Syria and Iraq to join IS (Bayaz Malika 2015). The reasons for people joining IS varied from political alienation, economic backwardness, lure of better financial rewards, radicalisation by clerics due to a distorted interpretation of Islam, effective propaganda on social media to influence potential recruits, lack of understanding of religion among potential recruits and ineffective approach of the governments to wean away young people from IS (Bekmurzaev Nurbek, 2015).

Tajikistan

Tajikistan after becoming an independent nation having a weak economy and smallest defence forces among the CARs was ill-prepared to protect its borders. However, its biggest threats were internal as it witnessed internal turmoil and civil war among its regional factions between 1992 and 1997. However, a breakthrough was achieved when thirty political parties signed the Treaty of the Public Accord on 9 March 1996, which became the basis for the formation of Public Council of Tajikistan. This was followed by the signing of the General Agreement on Peace and National Accord on 27 June 1997 for national reconciliation (TWF, Tajikistan 2018). As per the Tajikistan government, the cost of civil war was estimated to be USD10 billion.

Tajikistan after a brief period of peace faced internal conflicts and many of these were not stimulated by religious fundamentalism but had to do with local commanders' defiance of the central authority that led to Tajik military undertaking operation against rebel warlords to reassert control of rebel-held regions. Tajikistan witnessed a spike in its army's involvement in internal conflicts especially since 2009. These included armed conflict in the Rasht Valley followed by a conflict between Tajik forces and a local warlord in Gorno-Badakhshan Autonomous Oblast. Tajik security forces launched a week-long operation in Rasht Valley (located in the centre of the country) in 2009 to fight an alleged coup by Mullo Abdullo: a former warlord, who had fled to Afghanistan after rejecting the 1997 peace deal. Tajik forces launched

the second operation in Gorno-Badakhshan Autonomous Oblast (of which Khorog is the capital) in July 2021, when Pamiri elites refused to hand over a former warlord 'Tolib Ayombekov' for having assassinated General Abdullo Nazarov. Tolib was earlier given a government post for Ishkashim border guard section as part of the 1997 peace deal. A total of 17 soldiers and 30 civilians were killed in operation, which came to an end with the surrender of 'Tolib Ayombekov' after a ceasefire deal was negotiated.' He was later placed under house arrest and allowed to live in the region. In a similar incident in September 2015, Deputy Defence Minister Major General Abdulhalim Nazarzoda (former United Tajik Opposition commander) along with 24 militants was killed during an operation at Romit gorge, located 30 miles northeast of Dushanbe. The Tajik government blamed him for plotting a coup and launching an attack on police station in Vahdat and Dushanbe on 04 September 2015, which resulted in the killing of nine police officers. Nazarzoda supporters; however, refuted this allegation and instead claimed that he was framed for refusing to agree to the banning of the Islamic Renaissance Party of Tajikistan (IRPT). President Emomali Rahmon used such incidents to strengthen his hold on the power and designated himself as the "Leader of the Nation" with limitless terms through constitutional amendments and referendum.

Tajikistan borders, especially adjoining war-torn Afghanistan were porous and posed security challenges, which included drug and weapon trafficking, instability along state borders, illegal border crossings by armed groups, etc. According to the US Government report of 2010, a total of 80 tons of heroin and 20 tons of opium is smuggled from Afghanistan to Tajikistan annually, which is used by terrorist organisations for their sustenance and financing terror activities. The prolonged civil war made the Tajik government realise the significance of strong border management system. Therefore, it decided to set up the State Border Defence Committee in 1997. Also, the security agencies were strengthened, and military units replaced border guard troops. The coordination between defence forces and police was enhanced, and they undertook operations to eliminate criminals and terrorist groups like Rozvon Soirov, Rahmon Muakkalov, Alovudin Davlatov (Ali Bedaki) and control terror threats posed to Dushanbe and Khujand cities (Tajikistan, 2018).

Turkmenistan

Amongst the five CARs, Turkmenistan was the least attractive country to regional and global powers due to its reluctance to take side with three major powers of the period, i.e. Russia, China or the US. Its acceptance of permanent neutrality in 1996, refusal to seek the help of international or regional players and staying away from military groups reduced its attractiveness as a defence partner. This approach of Turkmenistan reduced competition among global powers and created positive sentiment among its population as well as neighbouring countries. It did not face significant external threat; however, its planners were concerned about the threat posed by terrorism and potential of Afghanistan infighting spilling over to Turkmenistan. Its leaders factored these threats in their security calculus and made several peace overtures. Its porous borders and defence forces increased its vulnerability. However, Taliban fighters fighting close of Turkmenistan border did not pose a major threat to Turkmenistan security as clashes along the Turkmenistan-Afghanistan border were minimal. Turkmenistan pursued the building of Turkmenistan, Afghanistan, Pakistan and India (TAPI) gas pipeline to supply natural gas to neighbouring countries; however, disputes between India and Pakistan and turbulence in Afghanistan cast clouds on its success.

Uzbekistan

Uzbekistan, one of the powerful nations among the CARs faced multiple challenges including frequent clashes between Taliban and Afghanistan Government forces along its border with Afghan, civil war in Tajikistan, radicalisation of its population, religious extremism and ethnic and religious conflicts in the country. The combination of fragile economic conditions, ethnic discords, radicalisation of population, instability in neighbourhood, long border, relatively ill-equipped and ill-trained defence forces and other security challenges created favourable conditions for the spread of terrorism. The banning of Birlink and Erk opposition parties in 1992, birth of Islamic Movement of Uzbekistan (IMU) in 1998, car bomb blast by IMU in Tashkent

killing 16 people in 1999 and two suicide bomb blasts in Tashkent in 2004 that resulted in the killing of 47 people indicated political uncertainty and the growing influence of terrorist groups (Saidazimova Gulnoza, 2006).

The challenges for Uzbek defence forces were many and 2005 was an extremely difficult year considering revolts by local warlords, anti-government protests influenced by mass media campaigns and toppling of governments in the neighbouring countries. In May 2005, Uzbekistan witnessed massive protests against growing poverty and the government, which became aggressive when 23 local businessmen were arrested on the charges of Islamic extremism. This created resentment among local population and armed supporters of businessmen took over a military base, stormed the prison and freed them on 12 May 2005. On 13 May 2005, Uzbek forces opened fire on large number of protestors gathered at the Bobur Square in Andijan, which resulted in killing of hundreds of people (Saidazimova Gulnoza, 2006). According to the Uzbek government sources, 187 persons were killed in firing, while other accounts estimate that death toll was around 700 people. The failure of mass movement to tapple the government was significant because it took place after the toppling of the Kyrgyzstan government (also known as the "Tulip Revolution") and many observers had anticipated a similar outcome in Uzbekistan, which did not happen.

Ferghana Valley

Ferghana Valley joining the three Central Asian countries, i.e. Uzbekistan, Kyrgyzstan and Tajikistan needs special mention as protection of 300 Km long Ferghana valley was a challenge for their defence forces. It played an important role in defence cooperation dynamics of the region. The valley surrounded by tough and porous hilly terrain in eastern Central Asia provided an easy transit route for drug trade and movement of terrorists to and from neighbouring Afghanistan, China (Xinjiang), and Pakistan. The valley, an underdeveloped and economically backward area, spread over 22,000 Square Kilometers and having about 10 million population

comprising people of different ethnicities and harbouring anti-government sentiments was susceptible to exploitation by criminals, drug traffickers and terrorist groups.

The Osh city of Kyrgyzstan and Andijan city of Uzbekistan located in the Ferghana valley were densely populated and volatile regions. In 1999, IMU militants took over a Kyrgyz village intending to attack Uzbekistan, and this village had to be evacuated in a joint operation by the Kyrgyz army with aerial support of Uzbekistan and Kazakhstan. The ethnic violence in Andijan, Uzbekistan in 2005 and later in Osh, Kyrgyzstan in 2010 led to loss of life and displacement of people. The fragile ethnic populations, danger of radicalisation and concerns about rising influence of terrorist organisations kept the three countries of the region together on counter-terrorism domain despite having differences on energy, water and other issues (Recknagel, 2010).

Terrorist Groups

Terrorist groups in Central Asia had affiliations with other groups as well as some of them were active in more than one country. Therefore, examining the origin of some of the key terrorist groups, their collaboration partners and areas of influence was essential to understand the challenges and need for establishing cooperation among the defence forces of CARs. Amongst CARs, Uzbekistan defence forces faced a fairly high threat from terrorist organisations. Islamic Movement of Uzbekistan (IMU), a predominant terrorist group founded by an Uzbek national Juma Namangani in August 1998 was most active and was involved in several terrorist incidents. The terrorist organisations including IMU were significant for Uzbekistan, India, the US and other countries as they operated in collaboration with Taliban, Taliban and Tehrek-i-Taliban Pakistan (TTP) and received support from other terror groups and intelligence agencies. Some of these groups participated in terror operations along with their counterparts from Afghanistan and Pakistan in Afghanistan and other countries. Tackling such international terror networks required collaboration among defence forces of countries involved and global counter-terrorism bodies. Uzbekistan moved closer to the US during this period and established military to military relations. Uzbekistan's collaboration with the US was though mercurial and yet significant for

both as the US military was actively involved in anti-terrorist operations in Afghanistan and Namangani was killed in Afghanistan in a US drone attack.

After the death of Namangani, Najmiddin Jalolov split from IMU in 2002 and founded the Islamic Jihad Union (IJU). IJU's influence was limited to Uzbekistan and it was behind the suicide bombing of the Uzbek Prosecutor General's office, the US and Israeli Embassies in Uzbekistan in 2004. It operated from Northern Afghanistan and Pakistan, and its close ties with Taliban, Al Qaeda and safe havens in Pakistan was a concern for Uzbekistan and other countries. IJU was designed as a foreign terrorist organisation by the US in 2005. (UNHCR, 2017)

IMU with depletion in its strength due to formation of IJU shifted its base to North Waziristan tribal region of Pakistan after the commencement of the US bombing campaign in Afghanistan in 2001. IMU leaders including Tahir Yulldashev (from 2001 to 2009), Usman Odil (from 2010 to 2012) and Usman Ghazi (from 2012 to 2015) relied on Taliban for sanctuary in Northern Afghanistan. In return, IMU fighters fought alongside the Taliban and TTP (IMU, ANS 2018). The economically backward and unstable Ferghana valley provided recruits to IMU and other terror groups. IMU was involved in carrying out terror strikes along the borders of Uzbekistan, Tajikistan, Turkmenistan and in Afghanistan. IMU received funding from Pakistan's Inter-Services Intelligence (ISI) agency, Al-Qaeda and later from Islamic State (IS) from 2015 onwards (IMU TMI, 2018).

The entry of IS on global terror map amid huge social media campaign and its declaration of the formation of Caliphate in 2014 enticed some terror groups (especially fringe groups) in Afghanistan, Pakistan and Central Asia to join IS. After the death of Taliban leader Mullah Umar, IMU under the leadership of Usman Ghazi decided to move away from Taliban and declared support for the IS in 2014. This brought division in IMU and some of its cadres continued to support Taliban. On the other hand, lure of association with IS, economic rewards and aspiration for expanding its aim from establishing Islamic rule in Uzbekistan to Islamic rule in Central Asia were enticing for IMU in declaring its allegiance to the IS. On the other hand, IS encouraged with some terrorist organisations from Central Asia, Afghanistan and Pakistan announcing their allegiance, declared formation of Islamic State of Iraq and the Levant (ISIL-K)

or Islamic State Khorasan Province (ISKP) on 10 January 2015. The expansion of IS into Khorasan, which was a historical region covering parts of present-day Central Asia, Afghanistan, Pakistan, India and Iran created concerns and common grounds for the defence forces of CARs, India and others regional and global powers to cooperate (ISIL-K, 2019).

The defence forces of CARs found it difficult to check the spread of IS into the region due to limited resources, unstable political and poor economic conditions, and porous borders. The migration of workers from Central Asia provided an opportunity to IS to recruit its cadre while weak border security facilitated their trans-border movement for training, executing terror attacks and fleeing of terrorists after attacks. About 5000 fighters from Central Asian region had joined IS by 2016, which was the highest number of fighters from any part of the world (Barrett, 2017). On the other hand, the decline of IS after its eviction from major cities of Iraq and Syria and deportation of about 500 battle-hardened fighters back to Central Asia in 2016 created conditions for revival and strengthening of terror groups in Central Asia, which was a concern for the defence forces of CARs. Besides, terror groups like Jamat Ansarullah, Jundallah (Warriors of Allah) - a Pakistan based extremist group, Hizb-ut-Tehrir (HuT or the Party of Liberation) and Jund al Khilafa (The Army of the Caliphate) founded by three Kazakhs in 2011 having links with terror outfits in Afghanistan-Pakistan region and Pakistan's Inter-Services Intelligence (ISI) agency also posed terror threat to CARs and India.

India's Approach and Policy towards CARs

India and Central Asian Republics (CARs) had more than 4500 years old civilisational links with its origin dating back to world's oldest Indus Valley or Harappan civilisation, which flourished in the western part of South Asia (present-day Pakistan and Western India) at around 2500 BC (Ancient History, 2018). The settlements in the upper reaches of Amu Darya region of Central Asia between the second half of the third millennium[3] and the first half of the second millennium

[3] A millennium equals 1000 years, e.g. 3rd millennium BCE is equal to January 01, 2001 BCE to December 31, 3000 BCE.

had trade links with the Harappan civilisation of India. There was migration of people from Central Asia and adjacent steppe[4] to India during the second millennium. Thereafter, the ancient Bactrian Kingdom[5] that was located in east of Persia and northeast of India between Oxus River (Amu Darya) and Hindu Kush Mountains had close ties with India during the first millennium BC. Later Kushan Kindom[6] of Central Asia had trade relations with India and Buddhist temples were built in Termez and Dalvarzintepa (Southernmost tip of Uzbekistan near Uzbekistan-Afghanistan border) during the first century AD. The relations between 'Ephtalite'[7] and 'Sogd'[8] state of Central Asia and India prospered during the fifth and sixth Century AD respectively (Uzbekistan, MFA History 2018). Babar, a Mughal King, after losing Kingdom in Ferghana valley (in Central Asia) invaded India and established the Mughal dynasty during the 16th Century AD that ruled a large part of India for almost two centuries (Sajjanhar A., 2016).

British East India Company established political power in India after the Battle of Plassey in 1757. The mutiny of Indian soldiers in 1857 is regarded as the First War of Independence that brought an end of the rule of British East India Company and forced the British government to take over the reign of India. In the Nineteenth Century, both Britain and Russia vied for influence in Central Asia. However, when Tsars of Russian took control of Central Asia during the second half of the nineteenth century, British had to be content with using Indian ports for trade as relations between India and Central Asia were disrupted. The mutiny against British colonial rule in 1857 sowed seeds of freedom struggle, which spread into the entire country and culminated into India achieving independence ninety years later on 15 August 1947. However, British divided India before leaving and drew its boundaries in such a way that India did not have land

[4] A large area of unforested grassland of temperate region, which lies between tropics and polar region especially in the South and East European and West and South-West Asian parts of Russia.
[5] The Bactrian region presently falls in western Tajikistan, southern Uzbekistan, eastern Turkmenistan and northern Afghanistan.
[6] Kushan empire spread from south Central Asia to North and West of India
[7] Ephtalite (Hepathalies) were nomadic people from Central Asia (now in Uzbekistan) who moved into western India.
[8] Sogd was an Iranian speaking region between the Amu Darya in the south and the Syr Darya in the north (present-day Uzbekistan, Tajikistan, Kazakhstan & Kyrgyzstan.

connectivity with Central Asia (India Profile, 2018). Lack of land connectivity though did not have much significance during the Soviet era when India's engagement with CARs was friendly but limited. However, the lack of land connectivity was going to pose far-reaching limitations on India in the future.

Independence of CARs in 1991 changed the dynamics of relations between India and CARs. An understanding of geography, economy, demography, political set up, security threats, defence forces and defence industries of five Central Asian Republics (CARs) was needed for identifying potential areas for cooperation including among their defence forces and defence industries. India viewed Central Asia as its extended neighbourhood and its historical and cultural relations provided the desired platform for establishing cooperation between India and newly formed CARs (India's GDP, 2018). On the other hand, independence of five CARs, their proximity to volatile Af-Pak region and Pakistan utilising the Af-Pak region to train terrorists for anti-India activities necessitated that India enhanced its engagement with CARs including in the defence domain. India struggled to enhance the level of economic cooperation with independent CARs (amounting to USD 500 million) and absence of land connectivity between India and Central Asia and the unwillingness of Pakistan to allow India to use its territory for establishing land connectivity with Central Asia limited the scope of cooperation among them.

India realising the geo-strategic significance of Central Asian region articulated its "Connect Central Asia" policy in June 2012 to enhance political, strategic, economic and cultural engagements with CARs (Ahmed E, 2012). However, India despite having long civilisational links and "Connect Central Asia' initiative lost out to competitors in establishing economic, trade and strategic cooperation with CARs, e.g. India's trade with Central Asian Republics in 2016

was barely USD 0.724 billion compared to USD 30.046 billion of China in 2016.

	Total Trade 1992 (USD Thousand)		Total Trade 2016 (USD Thousand)	
	India	China	India	China
Kazakhstan	0	3,68,230.68	4,45,386.87	1,30,97,399.42
Kyrgyzstan	0	35,454.10	28,427.75	56,76,660.46
Tajikistan	0	2,707.26	34,402.40	17,56,327.79
Turkmenistan	0	4,501.81	78,947.75	59,01,773.52
Uzbekistan	0	52,499.45	1,37,239.46	36,14,520.92
Total	**0**	**4,63,393.30**	**7,24,404.23**	**3,00,46,682.11**

Total Trade (Import +Export) (The World Factbook, CIA, 2016)

India's declining influence was highlighted when ONGC Videsh Limited (OVL), an overseas arm of Oil and Natural Gas Corporation (ONGC) Limited lost out in USD 5 billion deal for buying 8.4 % stake in Kashagan oil fields located in shallow waters of the northern Caspian Sea from global exploration company ConocoPhillips in July 2013 when Kazakhstan's state-run KazMunaiGaz (KMG) exercised its pre-emption rights to buy back shares of ConocoPhillips to block the deal and sold it to China National Petroleum Corporation (CNPC). India had earlier lost USD 4.18 billion deal to buy a stake in PetroKazakhstan to China in 2005. Overall, India is estimated to have lost deals worth USD 12.5 billion to China in the last decade and a half. India's endeavours paid some dividends when OVL bought 25 % stake in Satpayev oil fields and its production commenced in 2015 (PTI, 2015).

Defence Cooperation between India and CARs

The cooperation between defence forces of India and CARs was important for addressing shared security concerns as well as learning from experiences of each other. However, defence cooperation policy of each of the newly formed CAR evolved based on their respective threats, national policies and specific requirements of defence forces. On the other hand, CARs having remnants of Soviet-era defence industry and India pursuing domestic manufacturing of defence equipment appeared to present promising prospects for establishing defence industry cooperation

comprising acquisition of defence equipment, sharing of expertise and learning best manufacturing practices to strengthen their defence industries.

India and CARs shared concerns about terrorism especially emanating from the Afghanistan-Pakistan region. The newly formed CARs were economically vulnerable and geographically located in the vicinity of Afghanistan and Pakistan region, which had become the hotbed of global terrorism. The seeds of instability in the region were sown in the aftermath of the Afghanistan War that was fought between 1979 and 1989. Taliban consolidated its position and became the dominant group in Afghanistan; however, the situation remained unstable due to a protracted power struggle between the government and Taliban amid overt and covert support of external powers. Pakistan played a significant role in the rise of Taliban and volatile Afghanistan-Pakistan (Af-Pak) region became breeding ground for terrorists. Pakistan's intelligence agencies not only supported the Taliban but also used this region to train terrorists for carrying out terror strikes in India. Some terror groups smuggled opium and heroin from Afghanistan to other parts of the world including India and CARs and used this money for financing their terror activities (Said and Barret, 2017). A few of the terrorists recruited from CARs were found to be involved in terrorist attacks in other countries, which created concerns in India as well as in CARs. The terror threat emanating from the Afghanistan-Pakistan region led to convergence of interests between India and five CARs to establish defence cooperation among them.

The defence forces of CARs lacked expertise, equipment and training to protect their large and porous borders having hills to the east, Caspian Sea and deserts to the west and steppe in other parts. They faced a variety of security challenges including external aggression, terrorism emanating from Afghanistan-Pakistan (Af-Pak) region, revolts from local warlords, cross border drug trade and radicalisation of local population. On the other hand, Indian Defence Forces possessed vast experience of protecting large and diverse borders, fighting wars, insurgency and terrorism, which would have been useful for defence forces of CARs (Andamans, 2018). After the breakdown of USSR, Russia’s high level of influence in Central Asia, its disapproval of foreign military engagements in the region and its robust military-technical cooperation with CARs were dissuading factors for other countries including India in establishing defence cooperation with CARs (Gusey, 2019). India’s endeavours in establishing defence cooperation with CARs faced challenges, which included lack of geographical

connectivity. On the other hand, China and the US were making endeavours in establishing defence cooperation with CARs in the backyard of Russia. The pattern of their defence cooperation could indicate potential for other countries to establish defence cooperation with CARs.

Definition, Scope and Rationale

Central Asia with its rich energy resources had the potential to play a significant role in meeting the energy requirements of India. However, India lost out to competitors in establishing economic and energy cooperation despite having long and friendly historical and cultural linkages with the Central Asian Republics. Defence Cooperation is another area in which India and newly borne CARs could cooperate. Islamic State (IS)/ Daesh and other terror groups operating from unguarded tribal areas of Afghanistan-Pakistan region created shared interests between India and CARs to establish defence cooperation for countering and combating terrorism.

India and CARs had potential to establish collaboration between their defence forces and defence industries. The newly borne CARs needed to establish and strengthen defence forces institutions and reorganise remnants of the erstwhile Soviet defence industry. The CARs possessed manufacturing know-how, testing facilities, machines, etc. inherited after the break up of the USSR. On the other hand, the Indian defence industry had shown progress in manufacturing air, ground and naval equipment its defence forces were battle-hardened and professional forces. India and CARs having civilisational ties and the absence of conflicting interests had the necessary foundation for developing long-term Defence cooperation comprising cooperation between their defence industry and defence forces. However, defence cooperation between India and five CARs had not been adequately examined.

After 1991, several regional and global powers especially China and the US were focused on establishing political, economic and defence relations with the newly formed CARs. However, they were cautious about not offending Russia, which was the only country out of 15

countries formed after the break up of USSR that possessed necessary defence industrial ecosystem and strong defence forces to carry forward the legacy of erstwhile Soviet Union and contest their influence in the region. On the other hand, Russia was powerful but not as powerful as the USSR, which gave them hope for expanding cooperation with CARs. These countries made endeavours to establish cooperation with defence forces and defence industries of the CARs.

The scope of the study lies in examining extent and pattern of India's defence cooperation with five Central Asian Republics (CARs) of Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan and Turkmenistan comprising defence industry-to-defence industry and defence forces to defence forces engagements during the period 1992 to 2016. The study examines their policies, threats, potential and limitations of defence forces and defence industrial institutions of CARs, the pattern of their collaborations with external actors through bilateral and multilateral organisations to understand the potential for establishing defence cooperation between India and CARs, It examines capabilities, complementarities and gaps among the defence forces and defence industries of India and CARs. The rationale of commencing the study from 1992 is due to the fact that the five CARs had attained independence towards the end of 1991 and were in the process of setting up of defence institutions. The revival of defence industries of CARs and cooperation between India and CARs effectively started taking shape from 1992 onwards and study covers developments up to the period when the study had commenced, i.e. 2016.

Research Questions

The research would endeavour to answer certain pertinent questions: What were the security challenges faced by India and five CARs and how prepared were their Defence Forces to address them? What were the capabilities, strengths and limitations of Defence Manufacturing Industries of India and CARs? What was the extent of defence forces to defence forces and defence industry to defence industry cooperation between India and CARs? What was the role played by external players and multilateral forums in the security dynamics of the Central Asian region?

Hypothesis

This study attempts to test three hypotheses;

- Complementary capabilities of the defence forces and defence industries of India and CARs, with India having a holistic defence industry eco-system and professional defence forces and CARs in the process of establishing independent defence forces, procuring defence equipment and restructuring their defence industry, provide an opportunity for establishing robust defence cooperation between them.
- Terrorism emanating from the Afghanistan-Pakistan region provides common grounds for India and CARs to strengthen defence cooperation.
- The convergence of interests due to terrorism and other unconventional threats stimulated the establishment of defence cooperation among various stakeholders through multilateral organisations like the Shanghai Cooperation Organisation (SCO).

This study uses historical, analytical and descriptive methodology while examining the structure and capabilities of defence industry and defence forces of India and CARs. It deliberates on the extent of defence cooperation of CARs with India and other regional and global actors. It collates data through observations, in-depth interviews, document analysis and questionnaire method. The primary sources consist of reports, press statements, publications and documents on defence cooperation and defence industry issued by the governments of India, CARs, Russia, China, the US and international organisations like North Atlantic Treaty Organisation (NATO), European Union (EU), World Bank, United Nations (UN). It also includes debates and interviews with concerned officials, industry leaders and other personalities. Secondary sources include reports, books, documents, journals and articles. The electronic resource materials were used where relevant.

The study on defence cooperation between India and five CARs comprises of two elements, i.e. cooperation between their defence forces and between their defence industries. The study is divided into six chapters including this introductory chapter. As a precursor to the study, an endeavour was made in this section to examine political and economic conditions, geographical landscape, religious and ethnic instabilities, religious radicalisation, clan rivalries, terrorism, inter-state disputes, border defence challenges and other challenges faced by India and five CARs of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan that determine their need for establishing defence cooperation with other countries and multilateral organisations.

The second chapter would examine initiatives and challenges in developing defence forces and endeavours in the revival of defence industries by the CARs. The third chapter would examine CARs' defence cooperation with three major powers of the period comprising Russia, the US and China through bilateral interactions and multilateral organisations like SCO, Collective Security Treaty Organisation (CSTO), Commonwealth of Independent States (CIS), etc.

The fourth chapter would deliberate on structure, capabilities and combat experience of Indian defence forces, examine the structure of India's defence industry, and history of development of its military-industrial complexes, their capability and challenges. It would examine structures, capabilities and experiences of Indian defence forces in fighting wars and countering threats posed by Terrorism, Naxalism and other internal security challenges. It would also deliberate on origin, trajectory and challenges of public sector and private sector defence Research and Development (R&D) and manufacturing entities. The fifth chapter would examine the extent and pattern of military to military engagement and defence industry cooperation between India and CARs. It would include cooperation in the field of defence manufacturing, military training, joint exercises, intelligence sharing, etc. Finally, concluding chapter would summarise research findings, validate the hypothesis and answer research questions while highlighting key issues governing defence cooperation between India and CARs.

CHAPTER-2

Defence Forces and Defence Industries of CARs

Introduction

In 1991, the five CARs of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan became independent nations in a relatively peaceful manner. The disintegration of Soviet Union was quick without a protracted struggle and newly formed CARs did not have holistic defence forces and defence institutions for protecting their nations independently. The CARs were unprepared and lacked resources for establishing defence forces, defence institutions, and reviving and re-orientating remnants of Soviet-era defence industries. They initially deliberated on establishing common defence forces among the CIS but soon realised the impracticality of such an idea and established their independent defence forces.[9]

These newly formed nations had long and porous borders and volatile Afghanistan-Pakistan region in the neighbourhood. Their defence forces had to protect their countries against drug smuggling, radicalised individuals, clashes among rival clans, protecting their national governments from powerful clans and preventing movement of terrorists from unguarded borders. The meagre water, mineral and other resources and hasty delineation of boundaries created disputes among neighbouring countries, which did not lead to full-fledged wars; however, potential for conflict with neighbouring countries remained one of their concerns. The paucity of resources and absence of defence forces institutions and holistic defence industrial capability created the need among CARs for establishing defence cooperation with other countries.

The CARs inherited remnants of the Soviet defence industry, which appeared promising to other countries including India and China to fill technology gaps and strengthen their domestic defence industries. However, the break-up of Soviet Union resulted in the division of Soviet defence industry among the newly independent countries as a result defence industry became disjointed and dispersed. Therefore, a closer look at their defence industrial capabilities was

[9] The CIS was created by ten former Soviet States immediately after the dissolution of Soviet Union in December 1991 to establish cooperation in multiple domains.

needed to understand potential for their collaborations with defence forces and defence industries of other countries. An endeavour has been made to examine the evolution of defence forces and defence industries of five CARs between 1992 and 2016 in the post-Soviet era.

Defence Forces of CARs

The defence forces of the erstwhile Soviet Union possessed well-established organisational structures, procurement establishments, training establishments, operational units, experienced leadership and skilled manpower. The disintegration of Soviet Union into fifteen independent countries in 1991 dispersed its defence institutions and distributed resources and manpower among the newly independent countries according to their geographical locations. The five CARs like all other newly formed countries had to establish independent defence forces being sovereign nations. Accordingly, they needed to establish organisational structures, procure defence equipment, recruit manpower and train them, which required a large amount of funding and gestation period. The evolution of defence forces of five CARS as independent entities during the period between 1992 and 2016 is discussed in the succeeding section.

Defence Forces of Kazakhstan

The newly formed Kazakhstan was geographically the largest Central Asian country, which had land borders with Russia on the north and north-west, China on the east, Kyrgyzstan and Uzbekistan on the south, and Turkmenistan and the Caspian Sea on the south-west. Protecting a country endowed with natural resources like oil, uranium, minerals, etc. and a huge geographical area was a huge challenge for its defence forces. Kazakhstan had an unresolved border dispute with neighbouring Uzbekistan while it had reached consensus on border issues with Russia and China. Its aspiration to develop its defence forces was aimed at establishing collaboration as well as protection of its interests from two strong neighbouring powers, i.e. Russia and China while at the same time maintaining balance with the US, which was the biggest power. It harboured ambition for creating influence in the region while countering challenges posed by terrorism, religious extremism and radicalisation from social media. Therefore, immediately after becoming

an independent nation, it decided to abandon nuclear weapons that were inherited from the former Soviet Union and followed the policy of non-proliferation, which created positive perception as well as added to its challenges. Therefore, it needed to develop defence forces that were capable of meeting new challenges, which were different from the Soviet era. Kazakhstan described 'National Security' as one of the seven long-term priorities of the "Kazakhstan-2030" strategy that was articulated in October 1997 (Kazakhstan-2030).

To protect its borders, it had established all the three elements of the defence forces and their strength was progressively increased to 98,500 by 2000. Kazakhstan proactively instituted reforms in its defence policies and defence forces to make them professional and prepare them for envisaged challenges. As part of reforms, it reduced the strength of defence forces personnel to 70,500 by 2009 to make its forces lean and mean. Its budget allocation for the defence was USD 143 million in 2000, which was progressively increased with the strengthening of its economy till it reached USD 2.551 billion in 2013. The higher budget allocation for defence benefitted modernisation of its defence forces as well as the revival of domestic defence industry. However, the impact of fall in global crude oil prices from 2014 onwards adversely impacted economic health and defence allocation of Kazakhstan due to reduction in its revenue from export of oil and gas. Its budget allocation on defence remained close to 1 % of the GDP, which was one of the healthiest among the CARs (The World Bank, 2019).

After independence, the units of 40th Army of erstwhile Soviet Turkestan Military District inherited by Kazakhstan were nationalised on 8 May 1992 to establish its defence forces. It also inherited Soviet-era 2680 tanks, 2400 Armoured Combat Vehicles (ACVs) and 6900 artillery guns. Most of the Soviet-era defence equipment became outdated and unserviceable over a period of time due to lack of maintenance and spares support that was being provided by the erstwhile Soviet defence industrial ecosystem.

To protect its land borders, airspace and maritime interests in the Caspian Sea, it established Air Defence Force, Ground Troops and Naval Forces. It also established two joint troops formations, i.e. 'Air Assault Troops' and 'Missile Forces and Artillery' that predominantly comprised of mobile units to protect its large and sparsely populated country with fewer troops (MoD, Kazakhstan, 2019). Its combat formations consisted of two motorised rifle divisions, one tank division, one artillery brigade, one multiple rocket launcher brigade and one air assault brigade in 1996. To improve responsiveness and prepare for emerging threats, it re-organised its

Ground Troops (with Headquarters at Semey) into four Regional Commands, namely "Central (Astana), East, West and South in May 2003. With the passage of the time, the inventory of defence equipment had reduced to 884 tanks (T-72 and T-62), 2090 ACVs and 980 artillery guns by 2009 due to obsolescence and non-availability of spares (MIGF, 2010).

After independence, it did not envisage immediate military threat from neighbouring countries, i.e. Russia, China, Central and West Asian countries. Its President Nazarbayev in his address to the nation in October 1997 had stressed the need for using this period of lack of external threat for strengthening its economy, construction and modernisation of defence forces, improving their training, equipping them with modern armament and formulating military doctrine to prepare for future contingencies (Kazakhstan President, 1997).

Kazakhstan inherited Soviet-era defence training institutions, which included Almaty Higher Combined Arms Command School that was established with Soviet Presidential resolution of 1970. However, these defence institutions were not adequate to meet the training requirements of newly formed Kazakh defence forces. The lack of operational experience among the newly formed Kazakh defence forces came to the fore when its defence forces suffered casualties in 1995 during their deployment in the Tajik Civil war as part of Commonwealth of Independent States (CIS) forces between 1992-1997 (Pannier Bruce 2018). However, Kazakhstan continued to reform military training by learning from its experiences and studying the latest trends in military training. As part of reforms, Military Academy of the Republic of Kazakhstan bifurcated into Military Academy and Almaty Higher Military School. In August 2003, Almaty Higher Military School was renamed as the Military Institute of the Ground Forces (MIGF, 2010).

Military doctrine, described as a set of guiding principles, plays an important role in articulating force structure, bringing coherence in policies, equipping and training defence forces personnel to prepare them for their operational challenges. Amongst the CARs, Kazakhstan placed special emphasis on studies and academic research to analyse emerging threats, evolving nature of war, latest trends in employment of military, technological developments and other factors to formulate and review defence policies and doctrines.[10] Its military doctrine was formulated by taking into account global best practices and incorporating lessons learnt by its

[10] A doctrine is a guiding document that defines the structure and role of defence forces as well as scope and limits for their employment.

defence forces while interacting with defence forces of other countries. Its first military doctrine was formulated in 1993 and thereafter their updated versions were published in 2000, 2007 and 2011. These doctrines took into account global and regional developments, external and internal security threats, its priorities and aspirations to develop its defence forces and defence industry (McDermott, 2011).

The changes in doctrines indicated progressive transformation from Soviet-style defence forces to defence forces with Kazakh characteristic. The changes in doctrines were also influenced by the reorganisation of regional organisations such as transformation of Shanghai Five into Shanghai Cooperation Organisation (SCO) and Collective Security Treaty into Collective Security Treaty Organisation (CSTO) in 2002. The 2007 doctrine had taken into account structural changes in Kazakh defence forces that included the shedding of military districts structure in 2003 and adoption of Regional Commands structure on the lines of structure of defence forces of Western countries. The 2011 doctrine took into account global developments, rise of terrorism and placed emphasis on inter-agency coordination. It provided clarity of division of responsibilities with internal security threats being delegated to Interior troops with defence forces providing the backup option for contingencies (McDermott, 2011).

Kazakhstan after becoming a non-nuclear state gave an indication of moving towards non-alignment with the formulation of a Law on National Security in 2012, which banned the use of its soil for establishing foreign military bases or using its territory for transit of lethal weapons. The law reinforced its focus on establishing independent defence and foreign policy. The law, on one hand, deliberated at modalities of regional and international security cooperation while at that same time alleviated apprehensions of Russia and the US competition by banning deployment or use of its territory as transit bases by foreign countries and multinational military organisations. It maintained a distance from both Russia as well as the US, who were competing with each other to establish defence collaborations and use military bases of CARs (Law on National Security, 2012).

Kazakhstan synergised development of its armed forces with its doctrines to prepare them for envisaged threats. It instituted structural reforms and replaced erstwhile Soviet-style division and regiments structures with the smaller Western Brigades structures. It also established Air Mobile Forces brigade to enhance mobility, which enhanced the capability of its defence forces to respond to contingencies in different parts of the country in a short time frame. Its defence

forces lacked operational experience and an endeavour was made to correct this anomaly by participating in joint exercises with friendly foreign countries (Kazakhstan Army, 2019). Kazakhstan also made an endeavour for international outreach and establish itself as a responsible member of the comity of nations, it started contributing to UN peacekeeping operations in 2007. It sent observers, experts and police officers to various UN missions including United Nations Mission for Referendum in Western Sahara (MINURSO) and at Ivory Coast, i.e. United Nations Operation in Côte d'Ivoire (UNOCI). On 15 June 2015, it passed a law titled "On the peacekeeping activities of the Republic of Kazakhstan" to lay down guidelines for the participation of Kazakh troops in UN and other peacekeeping missions. This law provided legitimacy for expanding the scope and allowing participation of its combat troops in UN peacekeeping missions. The participation of Kazakh troops in UN missions remained confined to non-combat missions during the period of the study. Kazakhstan defence forces joining UN missions appeared to be its endeavour to come out of the shadow of Russia and assert its identity as an independent nation in international affairs (Law on Peacekeeping, 2019).

Amongst the CARs, Kazakhstan inherited sizable air arm at the time of independence, which was tailored to the needs of former Soviet Union and capable of carrying a mix of nuclear and conventional weapons. In 1994, its air arm had forty long-range Tu-95 MS nuclear bombers, 133 combat aircraft comprising MiG-23, MiG-27, MiG-29 and Su-24 fighter aircraft, MiG-25 high altitude long-range surveillance aircraft and An-24 and An-26 medium transport aircraft. However, Kazakhstan had decided to give up nuclear weapons and there was a need to re-organise its air arm to protect the airspace of the newly formed country without a nuclear arsenal. As a result, it established the Kazakhstan Air Defence Force (KADF) on 1 April 1998 that was equipped with missiles and other air defence assets. Two months later, a separate air arm, i.e. Kazakhstan Air Force was formed on 1 June 1998. The formation of these two independent organisations was essential for strengthening its air defence as well as air strike capability. However, acute shortage of technical manpower (had reduced to 30 to 50 % of the normal strength) and lack of maintenance support not only reduced serviceability but also adversely impacted the training of pilots (Kazakhstan MoD, 2019).

Kazakhstan dismantled nuclear delivery capability of its air force and re-organised it for undertaking conventional air operations. By 2009, its fighter fleet comprising 40 MiG-29 air defence 14 Su-25s, 37 Su-24s, 14 Su-27s, 16 MiG-25s and 43 MiG-31s fighters and Mi-24

assault helicopters was predominantly focused on undertaking conventional air defence and air strike mission. Its large fleet of 137 Mi-8 transport, and Mi-26 heavy-lift helicopters, and some Tu-134 and Tu-154 transport aircraft provided air transportation and logistics supply capability, which was essential for providing mobility and logistics supplies to its troops. It strengthened its Air Defence (AD) capability with an inventory of AD systems comprising 150 SA-2, SA-3, SA-4, SA-6, S-125, C-75, S-200 and S-300 surface to air missiles. It re-equipped and upgraded its aircraft inventory and acquired Su-30 multi-role fighter aircraft, L-39 fighter trainer aircraft, An-26, C-295, AN-12 and An-72 medium transport aircraft, Mi-35 M assault helicopters, Mi-171 Sh and Mi-17 B-5 medium-lift helicopters, EC-145 and UH-IH-II light transport helicopters. Its emphasis was on inducting advanced aircraft that strengthened air defence, transportation, and heliborne airlift and assault capability (Kazakhstan MoD, 2019).

Kazakhstan defence forces faced multiple challenges as President Nazarbayev in his address to the nation in 2000 had identified international terrorism, extremism and drugs smuggled from Afghanistan as main threats to the country and called for the adoption of 'Strategy of National Security of Kazakhstan'. It formed military districts, strengthened border defences, tightened migration control and established specialised units to prepare its defence forces for modern wars and countering activities of terrorist groups (Kazakhstan President, 2000). In 2001, Kazakhstan introduced reforms in defence forces to transform them into modern fighting forces by 2010 (Kazakhstan President, 2001). It modernised defence equipment inventory by acquiring four SU-30SM multi-role fighters from Russia and signed a contract for eight more in 2015 to bridge technology gaps and enhance operational capability of its air force. To enhance the level of operational training, it started conducting “Batys” strategic training exercise to train crew of anti-aircraft units and “Shygys” or “Kyzyl-Agash” Air Force exercise to improve command and control of air assets and coordination among the air elements during operations (KADF, 2019).

The Caspian Sea having a significant amount of oil deposits was a contested but strategically significant region, which motivated Kazakhstan to establish its Naval force, which came into being with the formation of its first naval base at Aktau on 2 April 1993. In 1999, Naval units were made part of the Border Service to bring synergy in the protection of land and maritime borders. However, disputes over the sovereignty of the Caspian Sea with neighbouring states necessitated establishing of an independent and stronger Navy. As a result, the Navy was

made an independent entity on 7 May 2003 by replacing the Maritime Border Guards, who were only responsible for protecting its coastal areas (Kazakhstan MoD, 2019). An independent naval arm was established not only to strengthen its capability to protect its maritime boundaries but also protect its economic interests in the Caspian Sea. It created a fleet of small patrol boats and missiles boats under 500 tons category to protect its coastal territory, offshore oil platforms and merchant traffic in the Caspian Sea (Kazakhstan Navy, 2019).

It diversified its naval equipment procurement as it acquired mine Countermeasure vessels under Project 1750E from Russia, developed Unmanned Underwater Vehicles (UUVs) with French assistance and acquired patrol boats from Turkey (Fediushko Dmitry, 2018). Also, it acquired aircraft, ships and anti-ship missiles from Western countries despite concerns from Russia. Iran, who maintained its claim over the large part of the Caspian Sea continued to voice concerns over rising capability of the Kazakh Navy.

Defence Forces of Kyrgyzstan

Kyrgyzstan defence forces were formed out of the Turkestan military district of Soviet regime comprising manpower and defence equipment left behind by Soviet troops. After independence, Kyrgyzstan had established land forces comprising military and police, which were responsible for countering external and internal security threats respectively. However, both of them were ill-prepared to discharge their responsibilities effectively as they lacked training and equipped The police, placed under the Ministry of Internal Affairs was responsible for fighting organised crimes, combating ethnic strifes, drug trafficking and other internal security challenges (Kyrgyzstan MIA, 2019).

Kyrgyz police enjoyed a prestigious position in the society due to economic gains associated with corruption while the defence forces were considered to be the second choice and were related to people, who could not afford money to pay bribes for joining the police. The drug trade, corruption, lawlessness, political factionalism and police-criminal nexus were prevalent in the country. The third security service, i.e. the National Security Service was responsible for protecting political elite; however, its members were also under scrutiny for corruption, siding with political leaders and compromising with the rule of the land (Marat, 2010). The fourth Ministry was the 'Ministry of Emergency Situations and Civil Defence' that was responsible for

civil defence and providing rescue and succour during disasters and natural calamities (Kyrgyzstan MES, 2019).

After independence, President of Kyrgyzstan Askar Akayev passed a decree on 13 January 1992 to establish State Committee on Defence, which was the first step towards the creation of independent defence forces. The strength of defence forces of Kyrgyzstan in 2016 had remained close to 20,000 personnel since 2000. Its annual budget allocation for the defence forces was USD 39 million in the year 2000, which gradually increased to USD 252 million by 2014 before reducing to USD 227 million in 2016. The defence allocation remained close to 3-3.5 % of GDP (The World Bank, 2019). The task of defence and security forces was to counter external and internal threats. Its land forces had inherited legacy Soviet-era and Russian equipment including 150 tanks, 385 Armoured Fighting Vehicles, and 30 self-propelled artillery, 159 towed artillery and 21 rocket launchers. Kyrgyzstan faced challenges in modernising its defence forces and upgrading its defence equipment due to paucity of funds (Global Firepower, 2019).

After independence, the Kyrgyz leadership did not envisage an imminent external threat. However, ethnic discord between Uzbek and Kyrgyz ethnicities and disparity in water resources remained potential flash points between Kyrgyzstan and Uzbekistan. The development of the Kyrgyz armed forces as independent entities was a slow process and many organizational changes took place as reactions to crisis rather than being planned activities. It created Defence Council on 13 December 1999 to look after the affairs of its defence forces, which remained in existence till March 2005, when it was suspended. The Defence Council was revived after revision of its Constitution in 2011 (Kyrgyzstan Armed Forces, 2019). In September 1998, Kyrgyzstan created Directorate of Border Guards on the lines of the Russian Border Guard units to improve management of its borders. However, paucity of funds and resources created challenges in surveillance and control of borders. Therefore, Kyrgyz Ministry of Defence signed an agreement with Border Guard Service of Russia on 17 June 1999 to allow Russian troops to guard Kyrgyz-China border. It removed 'Border Guard Service' from State Committee on National Security through the decree of the government No 161 dated 4 September 2012 and converted it into an independent "State Border Service" to strengthen border management. The appointment of Chairman by the President provided legitimacy and powers to effectively deal with issues of border management (Krygyz Border Service, 2019).

The Kyrgyz defence forces received less attention from its political leadership, as a result; the growth of its armed forces was ignored during the first decade. They were found ill-prepared when armed militants of IMU invaded Batken and Chon-Alay districts of the Osh region on the Kyrgyz-Tajik border during the late 1990s and early 2000. President Aksar Akayev realising the gravity of the situation initiated reforms in the military; however, these reforms were put in the backburner after he was overthrown on 24 March 2005. The incoming President Kurmanbek Bakiyev was accused of politicising defence forces as he reshuffled several senior leaders and also sent some of them on retirement (Marat, 2010).

After Bekiyev left the country on 15 April 2010, the interim government faced a series of ethnic clashes while dealing with transformation from Presidential to a parliamentary form of government. The clashes started with the killing of five Turks and burning of houses in the Kyrgyz-Turk community regions on the outskirts of Bishkek on 19 April 2010. A month later, there was flair up of ethnic violence leading to the killing of two and injury to 60 people of Kyrgyz ethnicity in the clash between people of Uzbek and Kyrgyz ethnicities in Jalalabad on 19 May 2010. The neglect of reforms in Kyrgyz military and lack of synergy between defence forces and police were exposed when they acted unprofessionally and in some cases in a partisan way during the clashes between the people of Uzbeks and Kyrgyz ethnicities in Osh in June 2010. These clashes led to the death of 450 people and fleeing of about 400,000 Uzbeks from their homes to safer places (Marat, 2010).

The reforms were introduced in defence forces, which included formation of motorised infantry formation in the South of the country, formation of air defence unit, mountain rifle unit and joining the joint defence mechanism of the Commonwealth of Independent States (CIS) and CSTO. An endeavour was made to bring professionalism in the defence forces through improved training and conduct of exercises with other countries (Kyrgyz Armed Forces, 2019). The General Staff of the armed forces, which was subordinate to the Ministry of Defence was withdrawn and placed directly under the President for improving its operational efficiency and strengthening control of the President. In series of reforms, Kyrgyzstan promulgated its National Security Concept (NSC) on 12 June 2012, a document that indicated how it viewed its security threats, its approach in developing security forces, and defined role of its security forces and multinational forces (KNSC, 2012). This document became the basis for formulation of Military Doctrine, which was published in 2013 (AKIP 2013).

Kyrgyzstan air force inherited Bishkek Aviation School, a large number of MiG-21 interceptors, ninety-six L-39 trainers and sixty-five helicopters among other assets at the time of independence but its air force personnel lacked desired level of training for undertaking combat operations. However, its leadership did not give priority to develop an operational air force due to economic and other challenges, and emphasis on formation of ground forces. It swapped IL-39 trainers with Russia and MiG-21 interceptors with Uzbekistan in 1992 and 1995 respectively for defence equipment for land forces, training and other support. In return, Russia provided training to Kyrgyz pilots and helped it in establishing its air defence units, which were equipped with SA-2 and SA-3 surface to air missiles. It still possessed 100 decommissioned MiG-21, ninety-six L-39 trainers (with limited ground attack capability) and sixty-five helicopters. In due course, most of these were poorly maintained and could not be used for operational service due to lack of spares, technical manpower and resources (Global Security, 2019).

Kyrgyzstan employed L-39 armed trainer aircraft and Mi-8 helicopters for combat support operations against IMU terrorists in 1999-2000. However, lack of combat training, and targeting data due to non-availability of surveillance assets and non-availability of forward air control capability limited effectiveness of Kyrgyz air force. Its air force remained one of the smallest, poorly manned and ill-equipped air force in the Central Asian region. Kyrgyzstan made a negligible endeavour to develop a combat-ready airforce and rather chose to depend on Russian air force elements positioned at the Kant airbase to provide air support during operations (Global Security, 2019).

Defence Forces of Tajikistan

The newly formed Tajikistan like other former Soviet states needed to establish independent police, state border and defence forces for providing protection from internal and external threats. Tajikistan's main concern was threat posed by terrorist groups operating from within the country as well as from neighbouring countries. It made endeavors to strengthen defences along the Afghanistan border to prevent infiltration of terrorists. It established Committee on National Security under the Ministry of Interior to address its security threats. The decision to establish Defence Forces was taken on 18 December 1992 and first military parade was conducted on 23 February 1993, which is celebrated as the "Day of the Armed Forces." The total defence forces

personnel of Tajikistan were 7200 in 2000 and their strength had increased to 16,300 in 2016, which was inadequate (The World Bank, 2019).

Its defence forces did not possess desired level of technical expertise, necessary equipment, trained manpower and organisation structures for facing internal and external security threats. The recruitment of erstwhile irregular and ill-trained fighters, who had fought the 1992-1997 civil war in defence forces added to challenges. These soldiers were ill-trained for combat and counter-terrorism operations. The small air force element comprising a few Mi-8 transport helicopters and Mi-24 assault helicopters limited their employability in combat operations. Russia provided six Mi-8 and Mi-24 helicopters in 2007 and a few L-39 trainer aircraft in 2010, which could undertake air transportation, medical evacuation, search and rescue and limited fire support to anti-terrorist operations (Tajikistan-Air Force, 2019).

The defence budget of Tajikistan was USD 10.3 million in the year 2000 that had increased to USD 95.7 million by 2015, which amounted to 0.6 % and 1.2 % of GDP respectively. The budget allocation was smallest amongst the five CARs and was inadequate for procuring defence equipment, recruiting required number of military personnel and training them. The weak economic conditions and limited resources restricted the scope for expansion and modernisation of defence forces. Tajikistan like Kyrgyzstan did not accord high priority to the development of air force, which was expensive and unviable for a small country (The World Bank, 2019). Tajikistan was largely dependent on Russia for addressing its security needs, who under an inter-government agreement had stationed 7000 soldiers in Tajikistan to provide security till 2042 (Gorenburg Dmitry 2015).

The protection of border was one of the major concerns for Tajik leaders due to proximity to turbulent Afghanistan, cross border drug trade, movement of criminals and radicalisation of youth. Tajikistan had established State Border Defense Committee in 1997 to oversee border management affairs. An endeavour was made to improve coordination among the Ministry of Interior, Committee on National Security, Ministry of Defence and General Prosecutor's Office to counter organised crime, internal and external threats.

Tajikistan being a small country with turbulent past was also concerned about protecting its President and government against coups, threat from terrorists and powerful hostile clans. The decree of the Supreme Council of Tajikistan dated 4 December 1992, approved formation of the first unit of its National Army i.e. Special Task Force (Military Unit No. 3571) under

Department of Internal Forces of Ministry of Interior. It was renamed as the Brigade of Special Mission on 10 April 1993. Thereafter, it was transferred into the Presidential Guard on 17 January 1995 (Tajikistan President, 2019). Two years later, four more military units of Presidential Guard were established in Chkalovsk (Sughd), Kalinin (Dushanbe) and Obigarm (Roghun). The Presidential Guard was renamed as the National Guard on 26 January 2004. It was made an independent entity and placed directly under the President. Tajikistan formally articulated its approach to establishing its defence forces with the publishing of its Military Doctrine in 2005. The doctrine took into account its appreciation of security threats, approach to force development and roles of Tajikistan and multinational forces (Tajikistan President, 2019).

Defence Forces of Turkmenistan

Turkmenistan is geographically, the second-largest country in Central Asia having borders with Kazakhstan, Uzbekistan, Iran and Afghanistan, and access to the Caspian Sea. It signed the treaty on joint measures with Russia in July 1992 in which Russia acted as guarantor of Turkmenistan's security and retained control over its armed force under a joint command till its armed forces became self-sufficient. On the other hand, it became the first Central Asian country to join NATO's Partnership for Peace initiative when some of its officers started getting training in May 1994. However, it reorientated its defence cooperation policy with the declaration of 'permanent neutrality' in 1995. Thereafter, it avoided joining multilateral military organisations and military alliances. In the spirit of permanent neutrality, strength of Russian troops was reduced gradually and presence of Russian troops in Turkmenistan was negligible by the end of 1999. On the other hand, discontinuation of engagement of its newly formed defence forces with defence forces of other countries slowed down their professionl growth (CAAT, 2019). Its emphasis continued to be on strengthening homeland security and addressing internal security challenges as it published law on Homeland Security on 4 May 2013 (Law of Tajikistan, 2013).

Its independent defence forces were established on 27 January 1992. Its defence forces comprised of land forces, air force, air defence force, navy including river flotilla and State Border Service (SBS). Its newly formed defence forces inherited Soviet-era Turkmen SSR Military District formations including 7 border detachments, motor rifle formations, and naval and river border troops of Central Asian Border District of the State Security Committee of the

erstwhile USSR (Turkmenistan, 2017). The strength of its armed forces was 14,500 in 2000, which had increased to 41,500 by 2016 (The World Bank, 2019). Its Ground Defence Forces were the largest among the Defence Services and its motor rifle divisions were located at Ashgabat, Gushgy and Gyzylarbat while its major airbase was located at Gyzylarbat.

At the time of independence, its military was equipped with Soviet-era military equipment like T-72 tanks, BroneTransportyor (BTR) and Boyevaya Mashina Pekhoty (BMP)[11] Infantry Fighting Vehicles (IFVs); however, these equipment were poorly maintained and its personnel lacked necessary training to utilise them optimally. Its air force inherited Soviet-era aircraft, which included MiG-29 and SU-25 fighters, Mi-24 attack helicopters and Mi-8 utility helicopters. Its air force lacked heavy airlift capability to move its land forces by air for rapid movement of troops within the theatre or in between theatres. Its defence forces personnel lacked training and skill to operate and maintain advanced defence and aviation equipment. The meagre defence budget of USD 210 million in 2012 was inadequate to maintain its defence forces and their equipment inventory in operational conditions.

Turkmenistan after being dependent on Russia for supply and maintenance of defence equipment diversified its equipment procurement with acquisition of long-range FD-2000 air defence missile system (Export version of HQ-9) and Pterodactyl (Yilong-1) UAVs from China in February 2015. The FD-2000 with enhanced anti-stealth capability strengthened its air defence capability as it could intercept aircraft, helicopters, UAVs, air to ground missiles, stand-off precision-guided bombs, and cruise missiles and was suited for air defence of Vital Areas (VAs) and Vital Points (VPs) (ARG, 2015).

The protection of rich mineral resources and preventing smuggling of contraband items along the Caspian Sea remained an area of concern for its planners. This area was a bone of contention among the neighbouring countries having access to the Caspian Sea. Turkmenistan in an agreement among Russia, Kazakhstan, Turkmenistan and Azerbaijan in March 1992 established Caspian Sea flotilla consisting of small coastal defence force to prevent smuggling through the Caspian Sea (Caspian Flotilla, 2019). Turkmenistan's naval arm was initially part of the department of the Ground Staff, however, it made Navy an independent entity in 2013 due to growing importance of offshore assets and need for protecting its coastal boundaries. It had set

[11] BMP - Boyevaya Mashina Pekhoty (in Russian) means Infantry Fighting Vehicle

up naval bases, procured naval ships and established naval officers training academy to strengthen its naval arm. It focused on modernising its armed forces, procured advanced defence equipment and UAVs to address its security challenges. It diversified its defence procurement as it bought Molniya class missile corvettes and eight naval vessels from Turkey. (Gorenburg Dmitry 2015). Its officers were predominantly trained in Russia and Turkey due to shortage of quality training institutions in the country; however, it had declined an offer from Pakistan's General Staff to train its officers in war colleges of Pakistan military. Overall, lack of reforms in defence forces and lack of quality training of its personnel remained its key concern, which sometimes resulted in sub-optimal exploitation of defence equipment (Turkmenistan Force Structure, 2019).

Defence Forces of Uzbekistan

The newly formed Uzbekistan announced the formation of independent defence forces on 14 January 1992, which is celebrated as the "Day of Defenders of Native Land". It took control of the Soviet-era military establishments and military educational institutions to establish Uzbek defence forces (comprising air and land forces), whose strength had increased to 68,000 personnel in 2016 (The World Bank, 2019). Its defence forces with a budget of USD 2 billion were the second strongest defence forces among the five Central Asian Republics. However, unlike Kazakhstan and Turkmenistan, it did not need Naval element due to absence of coastal boundaries. The President was the Commander in Chief of the armed forces having the authority to appoint and dismiss defence personnel while operational and administrative authority rested with the Ministry of Defence and Chief of Staff respectively. Its organisational structures were similar to erstwhile Turkestan Military District of Soviet-era, which included operational and mobilisation directorates and departments of intelligence, signals, transport, aviation, air defence, missile and artillery. Its defence forces inherited fighter-bomber regiment (Chirchiq), an engineer Brigade and an airborne Brigade (Farghona) from former Soviet Union (Uzbekistan MoD, 2019).

Amongst the defence forces, its land forces equipped with Soviet-era T-72, T-64 and T-62 battle tanks while its air force having SU-24, SU-27, SU-25 and MiG-29 fighters, and Illushin-76 (IL-76) and Antonov-26 (AN-26) transport aircraft were well-equipped entities.

However, flying training of its air force pilots' was adversely affected due to low serviceability and poor maintenance support for its aircraft fleet. Uzbekistan like most other CARs viewed threats from terrorism and internal conflicts to be more serious than external aggression. Uzbekistan published National Security Concept Law in 1997, which articulated its appreciation of external and internal threats, challenges, capability development and its approach to meeting these challenges (Uzbekistan NSC, 2018). Overall, its National Security Service (NSB)[12] – the agency responsible for internal security enjoyed a more prominent position in the country as compared to the defence forces. It re-organised its military, reduced inventory of heavy weapons and increased light infantry units that could act swiftly for counter-insurgency and counter-terrorism operations (Gorenburg Dmitry 2015).

Defence Industry of CARs

The origin of defence industry of CARs dates back to the World-War-II when Soviet and the US defence forces were on the same side during their fight against Germany led coalition. However, after the war, differences in political ideologies and competing interests led to division of the World into two power blocks. The US led the formation of collective security block, NATO in 1949 while Russia steered the formation of Warsaw Pact in 1955 as a reaction to West Germany being allowed to join the NATO and stronger Germany was viewed by the USSR to be a threat. The Soviet defence industry in the post World-War-II designed and developed defence equipment not only for the Soviet defence forces but also for Warsaw Pact allies and other friendly countries including India. Soviet defence industry evolved and had a robust defence industrial eco-system with an elaborate supply chain.

The disintegration of Soviet Union in 1991 resulted in dismantling of the Warsaw Pact as well as Soviet defence industrial ecosystem. Russia emerged as successor of Soviet Union as it inherited major portion of defence industry ecosystem comprising research, design and

[1212] The name of National Security Service, or Milliy Xavfsizlik Xizmati (MXX) – the successor of feared KGB was changed to the State Security Service, or Davlat Xavfsizlik Xizmati (DXX) in 2018, Toktonaliev and Kozokov (2018), IWPR, [Onlinbe: web], Accessed 8 December 2020, URL: https://iwpr.net/global-voices/uzbek-president-reins-security-service,.

manufacturing entities, which accounted for 67-80 % of total defence industrial enterprises. However, disruption in the supply chain of systems, sub-systems and materials reduced Russian defence production drastically to between 15-30 % of the level of Soviet era. Russia armed with the knowledge of 'why' aspects of products started exploring ways to reduce import of systems and sub-systems that were being manufactured in the breakaway Soviet republics (including CARs) during the Soviet era. Russia gradually started producing components and sub-systems and stopped procuring them from newly formed CARs, which adversely impacted viability of their respective defence industries. Another handicap faced by CARs' defence industry was absence of marketing skills and political connections in defence trade negotiations enjoyed by Soviet defence industry. The defence trade relations during the Soviet era were predominantly led by people from Moscow (now in Russia) and past relations with their client countries proved to be an added advantage for Russia in the post-Soviet era. The availability of essential defence industrial ecosystem and past connections helped Russia in re-establishing defence trade relations with erstwhile Soviet clients and obtain product support and product upgrade contracts. On the other hand, defence industries of newly formed CARs almost came to stand still with the disappearance of Soviet centralised planning system and disruption of the product supply chains. As a result, products and sub-systems being produced by CARs became irrelevant and unviable (Kazakh Military, 2019). Against this background, an endeavour is made to examine the evolution of the defence industries of five CARs in the post-independence period, which is discussed in the following section.

Defence and Aerospace Industry of Kazakhstan

Kazakhstan inherited relatively larger portion of Soviet-era defence industrial eco-system and was better equipped amongst the five CARs to build defence industry in the post-Soviet era. It housed about 50 military-industrial units having about 75000 employees during the Soviet era, which manufactured naval equipment, weapons for tanks, infantry fighting vehicles, small arms, missile systems, components of missile defence systems, torpedoes, anti-torpedo technology,

radar stations and radio electronic equipment for aviation. These units also produced 15-20 % civil products (Kazakh Military, 2019).

Soviet-era Kazakhstan had four regional centres of defence industry, which were, Petropavlovsk in north, Uralsk and Shevchenko in the west, Ust-Kamenogorsk in the east, Tselinograd in the centre and Alma-Ata in the south. The Petropavlovsk Heavy Machinery Plant (PZTM) produced launchers and medium-range ballistic missiles, anti-ship and anti-submarine missiles, mines, etc. Uralsk produced anti-ship missile systems, coastal defence missile systems, small arms and heavy machine guns. Almaty plant produced torpedoes, anti-ship and anti-submarine missiles, and associated systems and Kirov plant was the largest producer of torpedoes with gas propulsion system (Kazakh Military, 2019).

Kazakhstan supplied Uranium, systems and sub-systems of weapons to the Soviet defence industry. It also housed nuclear testing site at Semipalatinsk, missile-testing site at Baikonur cosmodrome, air-defence and missile-defence system testing site at Sary-Shagan and biological weapons testing site at Renaissance Island in Aral Sea during the Soviet Era, which was facilitated due to its vast territory with sparse population. Overall it accounted for approximately 11 % of total military equipment being produced by Soviet Union. The defence industrial ecosystem of Soviet-era was distributed in different states and as a result, the post-independence Kazakhstan did not have holistic defence industrial ecosystem to manufacture defence equipment independently (Kazakh Military, 2019).

After becoming an independent nation, Kazakhstan made efforts to revive its defence industrial complexes by developing civil and military products, systems and sub-systems with limited success. Kazakhstan signed a treaty with Russia in 1995 to enhance defence cooperation between them while at the same time its defence industry faced competition from Russia. Russian defence industrial suppliers enjoyed an edge over Kazakh counterparts in supplying spares and provide maintenance support to erstwhile Soviet clients. In the first decade and half, its military-industrial complex did not achieve much success because of absence of holistic defence industrial ecosystem. The limited availability of funds added to the challenges in the revival of its defence, aerospace and civil industry (McDermott, RN, 2012). .

The defence equipment possessed by Kazakh defence forces had become old by 2005-06 and a need was felt to meet their defence equipment requirements and develop its defence industry. It followed a three-pronged approach for building up defence capability that involved,

firstly, up-gradation and life enhancement of existing defence equipment (Soviet era) and acquisition of defence equipment from Russia (including in exchange for renting of Baikonur Cosmodrome); secondly, procurement of defence equipment from countries other than Russia, and thirdly, building domestic military-industrial complexes through research and development, collaborations, transfer of technology and joint ventures. Out of these, building of robust domestic military-industrial complex was an essential element of its policy to achieve self-reliance in defence equipment manufacturing. It paid special attention to the transformation of its Soviet-era military-industry into viable entities. In 2007, Kazakhstan launched a state program to develop armament and military equipment for the armed forces, modernise their Soviet-era defence equipment and develop defence–industrial complex by 2015 (Kazakhstan MoD, 2016).

In 2010, Kazakh Defence Minister Adilbek Dzhaksybekov outlined the Concept of Arms and Military Equipment Development, which was aimed at modernisation of weapons and equipment of the armed and security forces at par with "the best foreign models". It formulated a new defence doctrine in 2011, which carried forward the momentum and articulated priorities for building its defence industry. It established a national procurement office and followed a unified military-technological policy to maintain synergy among procurement, joint ventures and domestic production. These changes were aimed at upgrading the capability of domestic defence industry, pursue development of high-technology equipment through collaborations and joint ventures, invite foreign investment and explore potential for export of defence equipment (McDermott, RN, 2012).

The 2011 defence doctrine emphasised the need for promoting innovation, establishing mutually beneficial military-technical collaboration with foreign partners to design, manufacture and overhaul existing inventory and improve quality of indigenously produced defence equipment. It formulated National Security Strategy in the same year, which focussed on strengthening domestic capability and reducing dependence on foreign suppliers including Russia (McDermott RN, 2011). The Law on National Security attempted to articulate its concerns on information security by calling for maintenance and development of competitive and secure national information space. It proposed formation of central executive agency for formation, development and security of information, communication infrastructure and take measures for information security, intelligence and counterintelligence activities. The agency was to ensure inter-departmental coordination, monitor their implementation and compliance.

This law resulted in placing special focus on developing cybersecurity and Information Warfare capabilities (Kazakhstan MoJ, 2012).

Kazakhstan continuing with reforms of its defence industry allowed establishing of joint ventures in the country in 2013 for producing communication equipment, opto-electronics, aircraft, helicopters and Unmanned Aerial Vehicles (UAVs). The endeavour was to enhance capability of its defence forces at least cost by modifying and equipping existing Soviet-era defence equipment with precision strike capability, improving command and control systems and incorporating new technologies and capabilities. Also, some of the defence industrial entities were reorganised with an aim to improve their quality, productivity and export their products. It founded new companies to integrate civil and military manufacturing enterprises to optimally utilise their potential and meet the requirements of both segments (civil-military) of the market. In one such endeavour, Zenit plant and Godropribor Scientific Research Institute (Uralsk) known for producing combat vehicles for law enforcement agencies started producing civil-military products like motor vehicles, boats, ships, civil and military naval vessels up to 500 tons displacement and established Maintenance Repair and Overhaul (MRO) facilities for ships and naval vessels. Kazakhstan collaborated with foreign OEMs and sought transfer of technology to fill technology gaps as well as develop indigenous capability to repair, overhaul and maintain defence products within the country.

Kazakhstan-2050. Kazakhstan paid special attention to planning, formulating strategy and doctrines, which dictated the evolution of structure of its defence forces and defence industry. According to Kazakhstan President Nazarbayev *"Strategic planning is a 'number one' rule in the 21st century because no wind will be favourable unless a country does not know its route and destination harbour"* (Ussery Michael, 2017).

Nazarbayev launched Kazakhstan-2030 strategy in 1997 with an aim to achieve economic and strategic independence in which national security was one of the seven long-term priorities. However, it reviewed this strategy midway and articulated a new strategy named, “Kazakhstan-2050 Strategy” in December 2012 arguing that it had achieved most of its goals by then. The contours of new Kazakhstan-2050 strategy indicated that Kazakhstan-2030 strategy had become redundant, as it did not cater to the aspirations of the new Kazakhstan, which wanted to achieve greater autonomy in key economic and strategic sectors including defence and aerospace (Kazakhstan MoD, 2019).

The new strategy was carved out with a larger aim of elevating the country among the top 30 developed nations with defence and aerospace industries being a top priority area. The follow on Kazakhstan's Industrial Development program-2015 also indicated its emphasis on vitalisation of industrial, defence and aerospace manufacturing sector by attracting foreign direct investment and pursuing planned privatisation (Strategy-2050). The significance attached to defence and aerospace industry can also be seen from the formation of Defence and Aerospace Industry Ministry on 6 October 2016. This ministry was created to implement state policy pertaining to defence, aerospace and electronic engineering industry, information and communication security, mobilisation training, military-technical policy, military-technical cooperation, defence contracts, etc. The decree also proposed formation of Information security committee, Aerospace Committee and Committee for Stockpiles of Defence and Aerospace industry (Kazakhstan MoD, 2019).

Kazakhstan Engineering

JSC National Company (NC) "Kazakhstan Engineering", created under the Ministry of Defence in 2003 by merging 10 companies, became an important pillar of defence industrial manufacturing ecosystem in Kazakhstan. The number of companies under Kazakhstan Engineering had increased with the merging of Samruk-Kazyna group of companies in this company in 2006. Kazakhstan transferred its management to trust in 2010 to improve efficiency and productivity amid increased expectations. The company comprised 24 manufacturing enterprises and produced a variety of civil, military and dual-use products including oil, gas, railway, agricultural, power, military equipment and armament. The details of Kazakhstan Engineering companies are as follows:

S No	**Names of Companies and Percentage of Share Holdings by the State**	**Products**
	Affiliated Companies	
1	JSC "832 Auto Repair Plant KE (100%)"	
2	JSC "811 Auto Repair Plant KE (100%)"	
3	JSC "Semipalatinsk Engineering Plant (99.4%)"	
4	JSC "Kazeng Electronics (100%)"	
5	JSC "Petropavlovsk Heavy Engineering Plant (99.8%)"	
6	JSC "Plant S.M. Kirov (99.6%)"	Underwater weapons
7	JSC "Instrument-Making Plant" Omega(98.6%)"	

8	JSC “TYNYS (99.17%)”	
9	JSC “Semey Engineering (100%)”	Land Weapons Systems
10	JSC “Ural Plant Zenit (95.35%)”	Ship Building Division
11	JSC “Machine Buiding Plant. Kirov(97.71%)”	
12	JSC “Sri Gidropribor (93%)”	
13	JSC “Munaymash(52.04%) ”	
14	JSC “Sri Kazakhstan Engineering (100%)”	
15	JSC “Kazakhstan Aviation Industry (100%)”	
Joint Ventures		
1	LLP “Eurocopter Kazakhstan Engineering (50%)	
2	LLP “JV, Thales Kazakhstan Engineering (50%)	
3	LLP “Kazakhstan Aselsan Engineering (50%)	
Affiliates		
1	JSC “Ziksto (42.13%)”	Ammunition Division
2	JSC “Kamaz Engineering (25%)	
3	JSC “Kaz-ST Engineering Bastau (49%)	
4	LLP “Kazakhstan Engineering Distribution (49%)	
5	LLP “Indra Kazakhstan Engineering (49%)	
6	LLC “Kamaz-Semey (49%)	
7	LLP “Spetsmash Astana (35%)	
Organisation with a Share of Less Than 10%		
1	JSC “Aircraft Repair Plant, No.406 GA (3.99%)	
2	JSC “Aircraft Repair Plant No. 405 (2.6%)	

JSC- Joint Stock Company, NC- National Company

Table. JSC NC Kazakhstan Engineering (2019)

Business and Export

Kazakhstan Engineering group of companies produced armoured cars, rapid response vehicles for police, multiple rocket launchers, anti-aircraft guns, heavy load carrying vehicles and chassis, engineering and armoured vehicles. The products of all companies were sold through a single entity, i.e. Kazakhstan Engineering. On the other hand, government officers headed these companies and possessed little autonomy for sale, negotiations and lobbying, which adversely impacted their economic viability and business pragmatism.

The value of products sold by Kazak Engineering accounted for 10.3 % share of engineering industry of Kazakhstan. The total sale during the 2015 was 63.5 billion Tenge (KZT) (USD 185.07 million), out of which military, dual-use and civil products amounted to 52.7 billion KZT (USD 153.6 million) and 8.2 billion KZT (USD 23.9 million) respectively. The

company after making low to moderate profits during the preceding four years, incurred a loss of 8.266 billion KZT (Approx. USD 24.09 million) in 2015, which was attributed to introduction of free-floating exchange rates for KZT. As part of Kazakh strategy of capability building of domestic defence and aerospace industry, it established joint ventures with foreign companies and brought changes in the functioning of Samruk Kazyna Group that controlled several key companies. To energies its defence industrial complex, it raised money by issuing bonds and diversified into manufacturing of military and civilian products. Its companies were producing vehicles, MAZ cars, electro-optical devices and ships weighing up to 600 tons and higher weight category at JSC Ural Plant "Zenith" in 2015. These companies continued to make endeavours to increase production, develop high technology products and promote export. These companies faced challenges from competing Russia, declining domestic orders, lack of economic viability and absence of holistic defence industrial ecosystem (JSC NC Kazakhstan Engineering, 2019).

Military Land Systems. Kazakhstan needed large defence forces for defending large land borders, which it did not have. Therefore, it resorted to mechanisation of land forces, which were duly supported by a large fleet of tanks, armoured vehicles, personnel carriers and fighting vehicles. Kazakhstan needed MRO set up for sustenance of large number of Russian origin armoured land systems like T-72 and T-62 tanks, Boyevaya Mashina Pekhoty-1 (BMP-1) and BMP-2 Infantry Fighting Vehicles, armoured troop carriers (Bronetransporter) BTR-60, BTR-70 and BTR-80, Boyavaya RazvedyvateInaya Dozornaya Mashir (BRDM)-2 reconnaissance vehicles, self-propelled artillery "Carnation" 2S-1, 2S-3, etc. (JSC NC Kazakhstan Engineering 2019).

Firstly, it created JSC Semey Engineering, an ISO 9001: 2008 by reorganising 1976 vintage RGP "Armoured Plant" to carry out overhaul and upgradation of land equipment. Secondly, it reorganised erstwhile National Centre for Electronics and Communication to establish JSC "Kazlnzh Elektroniks" in 1994 to undertake production and modernisation of fire control systems of self-propelled artillery, command and control vehicles, manufacturing of radio, electronics, communication equipment and computers, collection and processing of remote sensing data, and information protection. Thirdly, it created JSC "811 and 832 Auto Repair Plants Kl" to undertake major repair and upgradation of automotive, military caterpillar vehicles, engines, etc., which include (Zavodimeni Likhachyova) ZIL, URALS-375, URAL-4320 cars, engines, KAMAZ-4310, YaMZ-236, etc. Fourthly, it reorganized and established JSC "Plant of

S.M. Kirov", which was first established in 1928 to produce radio and communication equipment for military and civil and clients including railways, oil and gas industry users. Fifthly, it formed JSC "Semipalatinsk Engineering Plant", which was first established in 1969 and was known for producing high flotation capability caterpillar equipment in the past to undertake, manufacturing, repair overhaul and modernisation of arms and military equipment since 2012 (JSC NC Kazakhstan Engineering 2019).

Military Aviation Systems. The need for air assets and capabilities emanates its aspirations to protect its air space from neighbouring countries, carry out surveillance of land borders as well as to take on ground operations should the need arise. Kazakh had large Soviet-era military aviation assets, which being high technology equipment, needed specialised maintenance, repair, overhaul facilities and upgradation of equipment to remain operationally relevant. Kazakhstan industry initially struggled to meet requirements of its defence forces and it had to depend upon Russia for the sustenance of its military aviation assets (JSCNC Kazakhstan Engineering 2019).

Kazakh government initiated reforms and re-organised its aviation industrial units, which comprised of reorganisation of JSC NC Kazakhstan Engineering to establish Aviation Technical Centre in Astana in 2015. The aviation technical centre was established with an aim to develop indigenous capability in meeting specific needs of maintenance, repair and overhaul of aviation equipment that was being done in Russia, Belarus and Ukraine till then. Similarly, JSC “Tynys” founded in 1959 and known for producing oxygen and respiratory equipment during the Soviet era was re-organised to manufacture, repair and overhaul life support equipment for aircraft like defrosters, fans, fire extinguisher cylinders, automation equipment like relay sensors, valves and products for civil and military aircraft including AN, IL, TU, YAK, BE, SU, MIG, MI, KA, Ansat series of planes and helicopters. Lastly, JSC “Aircraft Repair Plant No. 406 GA re-organised to undertake major repairs and maintenance of aviation engines of aircraft and helicopters while JSC “Aircraft Repair Plant No. 405” undertook repair and restoration of aircraft. Some of these entities were re-organised and established despite losses suffered by them (JSC NC Kazakhstan Engineering 2019).

Naval Systems. Kazakhstan needed naval assets to protect its economic and security interests in the Caspian Sea, whose sovereignty was disputed by countries of the region as they had overlapping claims. Kazakhstan inherited naval manufacturing units, which produced a

variety of navel equipment during the Soviet era. After independence, these units were re-organised as well as new units were created to produce, repair and maintain civil and naval shipping products. After independence, JSC "Ural Plant - Zenit"[13] started producing boats and ships in 1993 and displacement of ships being produced in the plant was progressively increased from 240 tons to 600 tons. The requirement of smaller boats was met through JSC "SRI" Gidropribor"[14], which produced boats up to displacement of 70 tons, anti-mine self-propelled submarines, buoys and diving equipment. JSC "Instrument Making Plant -Omega"[15] produced subsystems like ship steering gears, intra-ship communication, signalling equipment, ship instruments and consumer goods. The requirement of armament, hydraulic system and underwater equipment was met from JSC "Engineering Plant of S.M. Kirov"[16], which produced 20 types of torpedoes with heat engine, hydraulic systems for surface and underwater ships (Kazakhstan MICK 2019).

Kazakhstan Navy acquired first domestically produced missile and artillery ship named "Kazakhstan". The vessel was assembled at the Uralsk-based "Zenit" plant. Kazakh Defense Minister Adilbek Dzhaksybekov during his visit inspected technical features of new ship having a displacement of 240 tons and could achieve maximum speed of 30 knots. The ship was equipped with ultramodern navigation systems and an onboard desalination plant due to which enabled the ship to remain at sea upto 10 days. The ship entered service in 2012 and was meant to undertake patrolling of Kazakhstan's territorial waters in the Caspian Sea. This ship fitted with modern anti-aircraft missiles and artillery units was expected to stimulate manufacturing of advanced naval vessels manufacturing in Kazakhstan (Kazakhstan MICK 2019).

Research and Development. The break up of Soviet Union created gaps in defence industrial ecosystems of the CARs as they did not have holistic ecosystems of which research and development capability was lacking. Kazakhstan in a move to fill this gaps founded LLP "SRI Kazakhstan Engineering" in 2010 to undertake research to design and develop new weapons, modern military equipment and special products for defence forces as well as undertake modernisation of existing inventory. It was involved in design and development of

[13] founded in 1941 and was known for producing naval arms during the World War-II
[14] founded in 1972 at Uralsk
[15] founded in 1972 during Soviet era
[16] founded in 1942

defence products in collaboration with other enterprises of Kazakhstan Engineering and in some specific projects with foreign OEMs. It was created with an aim to harness potential of defence forces personnel having worked in armoured, artillery, aviation, naval, special operations and communication arms of military, cadets and trainee officers of military schools, and scientists of Kazakhstan and CIS countries. It also collaborated with foreign countries for specific projects, which are discussed later.

Collaborations and Joint Ventures. Kazakhstan on one hand maintained close relation with Russia while at the same time it established collaborations and joint ventures with Western defence manufacturers to fill technology gaps. Its defence relations with Russian did not become hurdle in establishing defence industrial relations with the US, European, Turkish and other defence manufacturers while exploring means to strengthen domestic defence industry. In one such move, Kazakhstan Engineering collaborated with Thales company of France to produce third and fourth generation VHF and HF radio communication equipment, fire and rescue equipment and radars as well as undertake modernisation of existing equipment (Kazakh Military, 2019). Similarly, LLP "Eurocopter Kazakhstan Engineering", JV company was established at Astana in collaboration with Airbus Helicopters of France with each having 50 % stake in December 2010 to assemble, sell, provide training, maintenance and overhaul services for EC-145 helicopters.

Kazakhstan also established collaboration with Indra Systemas of Spain, which was a leader in radars systems. As a result, LLP “Indra Kazakhstan Engineering”, S.A was founded on 28 June 2011, which was a JV company in which JSC “NC” Kazakhstan Engineering” and Spanish Indra Sistemas had stakes of 49 % and 51 % respectively. The Indra Sistemas was to provide technology for production, maintenance and overhaul of radar systems along with technological license. These radars were meant to enable Kazakhstan Navy in carrying out surveillance of the Caspian Sea falling under Kazakhstan. Kazakhstan was open to establishing collaborations including with Russia, the US, Europe and other countries as long as it met its requirements. One such collaboration was with Turkey, who was a member of NATO and had established robust defence industry and created space for itself in some areas. LLP "Kazakhstan ASELSAN Engineering" JV was founded on 18 April 2011 with Kazakhstan Engineering, Turkish Company ASELSAN and Turkish Defence Industry having stakes of 50 %, 49 % and 1 % respectively. The company was established to provide technical support, maintenance, training

and research and development in night vision devices, riflescopes and thermal imagers. Kazakhstan Engineering also established JV with Paramount Group of South Africa and formed Kazakhstan Paramount Engineering LLP's plant for manufacturing armoured wheeled vehicles including Arlan, Barys. This plant was inaugurated in November 2015.

Civil and Dual-Use Products. Kazakhstan reorganised Soviet-era military-industrial entities to produce dual-use civil-military equipment for its strategic oil, gas, power, railway and other civil industrial sectors. JSC "Petropavlovsk Heavy Engineering Plant" produced oil and gas, power and railway equipment. JSC "ZIKSTO" earlier known as Engineering Plant of V. V. Kuybyshev was privatised by reducing share of the state to 39.4 % and was converted into a joint-stock company in 1994 that produced a variety of railway equipment. JSC "Kamaz Engineering" founded in 2005 produced cargo cars, special and dual-purpose equipment meant for agriculture, road construction and power sector. "Almaty Heavy Machine Building Plant" Joint Stock Company (AHMBP JSC) founded on 17 November 1941 produced heavy machines and armament comprising bombs, mines, shells, etc. In 1982, it was exporting about 300 items to 32 countries. After Kazakhstan became an independent nation, the plant obtained 9001-2008 certification and became a leading engineering company of the country. In addition, "JSC Aircraft Repair Plant 405" Consortium "Zhasampaz", Kazakhstan Paramount Engineering and LLP "KAE" started producing a variety of military and civil industrial equipment (AHMBP JSC, 2019).

As part of its endeavours to leverage imports for capability building, encourage domestic manufacturing and facilitate exports. Kazakstan formulated and reviewed its policies at regular intervals to leverage defence procurements for strengthening its domestic defence industry. As part of its defence reforms, it enacted the 'Law on Offsets' in October 2015 to leverage procurement of defence equipment from foreign OEMs to increase domestic manufacturing (Law on Offsets, 2019).

Kazakhstan had set up LLP "Kazakhstan Engineering Distribution" with an aim to develope defence industry complexes, formation and implementation of plans, facilitating import of arms and military equipment, and channelising production of defence, dual-use and civil products (JSC NC Kazakhstan Engineering, 2019). However, Kazakhstan government's endeavours to build its defence and aerospace industry were not without challenges as

indigenously manufactured defence products were becoming economically unviable due to limited orders from its defence forces, which necessitated that it explored avenues for exports.

KADEX

After 1991, Russia enjoyed a dominant position in supplying defence equipment to Kazakhstan, a situation in which Kazakhstan was not comfortable with. Kazakhstan harboured aspirations for building strong defence forces and achieving self-reliance in defence equipment manufacturing. Its defence forces were mechanised and possessed a large inventory of defence equipment, which needed to be maintained, upgraded and replaced with newer equipment and technologies. Kazakhstan started biannual Kazakhstan Defence Expo (KADEX) in 2010, which became an event. KADEX helped Kazakh defence forces and defence industry to meet global defence manufacturers, identify defence equipment for procurement, diversify procurement to reduce dependence on any one country, establish collaborations and joint ventures, and export domestic products. KADEX was not as large as Defence Expos being conducted in Paris, UAE, UK, etc.; however, it indicated aspiration of Kazakhstan to look beyond Russia for procuring defence equipment. It encouraged foreign defence OEMs to produce their equipment in Kazakhstan in collaboration with domestic manufacturers, which in due course helped strengthened its domestic defence industry (Kazakh Air Force, 2019).

Challenges and Opportunities

Kazakhstan President Nazarbayev while addressing the operational strategic council meeting on 06 March 2014 criticised military for poor financial discipline and widespread corruption, which he described as a threat to the national security. He called for enhancing combat readiness and improving cooperation with internal security agencies and international partners to meet emerging threats and challenges. Kazakh leader emphasised the need for imparting professional military education to higher functionaries within the country and enhancing the retirement age of military personnel to optimally utilise their potential for bringing professionalism and reducing expenditure. Kazakh leader had envisaged militarisation of the Caspian Sea in future due to lack of clarity on its legal status and wanted armed forces to prepare for such contingencies.

Kazakhstan followed multi-vectored defence cooperation policy that was free from the influence of Russia, China, the USA and any one country. Kazakhstan progressively looked beyond Russia and procured military equipment from other nations. Its endeavours in reviving its military industry and collaboration with international partners enabled its military-industrial complexes to assemble helicopters, manufacture military optical equipment, radars and radio equipment, naval ships, repair of aviation systems and armoured vehicles. Kazakhstan viewed military equipment manufacturing as important pillar of its industrial development and wanted to expand scope and scale of military equipment manufacturing by modernising them and through transfer of technology (Kazakhstan President, 2014).

Defence Industry of Uzbekistan

Uzbekistan joined USSR in 1924 and during the Soviet era, it was home to centres of higher defence education and scientific research institutes, and literacy rate of its population was fairly high at 95 % (in 1941). During the World War-II, Germany's attack on USSR on 22 June 1941 triggered shifting of more than hundred key industrial enterprises from other parts of USSR to Uzbekistan, which included Leningrad factory for textile machinery, Rostselmash, Stalingrad Chemical plant, "Krasniy Aksay", Moscow factories "Podemnik", Elektrostanok", Tashelmash steam-locomotive repair and Chirchik city electrochemical plant and metallurgical plant in Bekabad for non-ferrous materials (tungsten, molybdenum and copper). These plants produced more than two thousand planes, 17 thousand aircraft engines, mortars, 22 million mines, 560 thousand shells, about million grenades, 330 thousand parachutes and 100 thousand km of different wires. In due course, more than 22,000 specialists were trained for various skills related to production of defence equipment (Uzbekistan MFA, 2019). The TAPiCH, also known as TAPO, one of the largest aircraft manufacturing entity in the USSR, was established in Khimki region of Moscow in 1932. It was moved to Uzbekistan during the World-War-II in 1941. It was involved in the production of several transport aircraft including An-124, An-225, IL-76, IL-78, A-50 and IL-114-100 aircraft.

After independence Uzbekistan inherited the largest military industrial complex in Central Asia. It shared border with turbulent Afghanistan but not with two major regional powers, i.e. Russia and China. After independence, it showed inclination to follow independent

foreign policy with slight tilt towards Western countries. These factors made it a preferred country for the US and NATO to establish defence cooperation. After initial bonhomie with Russia, their relations dampened when Uzbekistan joined NATO's PfP program in 1994. The PFP was launched with an aim to increase defence cooperation with former Warsaw Pact members and help those aspiring to joint NATO prepare for its membership (Relations with Uzbekistan, 2017).

The defence cooperation of Uzbekistan with the US and NATO countries remained moderate in the first decade. However, after the 9/11 terrorist attacks on the US, Uzbekistan allowed the US and NATO to use Termez and the Karashi-Khanabad (K2) military airfields as transit bases for shipment of supplies to the US troops involved in the US war on terror in Afghanistan. It made endeavors to collaborate with the US, European and other Western countries to revive its defence and aircraft industry. Uzbekistan used this period of bonhomie with the West to upgrade and produce IL-76MF by fitting Snecma engine from French company and IL-114 with Canadian engines. The endeavour was to upgrade aircraft by using more efficient and better performance engines to enhance capability of Russian platforms held in its inventory. It also sold 20 IL-76 heavy-lift aircraft to China and 15 IL-114-100 transport aircraft to United Arab Emirates and China.

Its relations with the US and other Western countries deteriorated after their criticism of poor human rights records of Uzbekistan in 2005. Uzbek government asked the US to vacate its Karashi-Khanabad (K2) airbase. After this incident, Uzbekistan focussed on improving defence relations with Russia and China. It joined SCO; however, with improvement in relations with the West in 2007, it followed a go-slow policy on participation in CSTO exercises and suspended its membership of CSTO in 2012 (Jozef Lang, 2015). The hot and cold relations with Russia created distrust, which contributed to its failure to revive IL-76 aircraft production assembly by collaborating with Russia and disinvesting 49 % stake in aviation entities (TAPICH, 2019). The follow on reduction in demand and shortage of qualified staff led to its closure in 2015 (Virgil Kevin, 2015).

Defence Industries of Kyrgyzstan, Tajikistan and Turkmenistan

Amongst the Kyrgyzstan, Tajikistan and Turkmenistan, Kyrgyzstan is the only country which inherited defence-related infrastructure of significance. It inherited torpedo manufacturing factory and Issyk-Kul lake testing site. Issyk-Kul lake located near Karakol, which is about 250 Km from capital Bishkek, was an important facility that was suited for testing of advanced torpedoes. Kyrgyzstan had established Joint Stock Company Ulan in 1992 to operate this torpedo-testing site (Joshua Kucera 2015).

Kyrgyzstan had also set up Joint Stock Company (JSC) Dastan Engineering Company at Bishkek, which was its largest company that had evolved from the erstwhile Soviet-era defence industry ecosystem. It had a long history of manufacturing naval and underwater weapons, rocket systems, protection systems for aerial platforms and armoured vehicles, radio and reconnaissance products during the Soviet era. The products of newly formed JSC Dastan Engineering included VA-111 Shkval torpedo, USET-80, torpedo 53-65KE, mobile ground mine "MURENA", multifunctional homing electric torpedo SET-92 HK, F-3 laser range-finding jamming system for tank fire control, "Adros" KT-01 AVE jammer for helicopters, anti-tank rockets, anti-aircraft missiles. The VA11 Shkval supercavitating torpedo was a unique torpedo in the world that was capable of achieving speeds higher than 200 knots (230 mph).[17] It was developed by erstwhile USSR to take on the US aircraft carriers (Dastan Engineering, 2019).

Dastan Engineering lacked research and development laboratories, and complete manufacturing chain and its products could not keep pace with technological advancements and demand for its products disappeared. Russians had been interested in this company since beginning due to its past history of developing some of the best torpedoes. They were willing to invest and share technology to bring up the company under its fold. However, there were both supporters and opponents of Soviet investment and collaboration within Kyrgyzstan. The supporters of Russians investment in Kyrgyzstan felt that Russian investment would enforce professionalism and reduce corruption by Kyrgyz official while critics harboured apprehension that investment would enhance Russian influence in this strategic sector. On the other hand,

[17] The VA-111 is launched from torpedo tube at 50 Kts (93 kmph) before its solid-fuel rocket ignites, which propels it to the speed of 200 kts (370 km/h). The high speed is achieved due to supercavitation. In this, shape of nose cone and expansion of gases from its engine deflects water to create a gas bubble around the torpedo. The resultant reduction in drag enables the Shkval to travel at such a high speed. The effort was on to improve its design and increase its speed to 300 Kts.

Kyrgyzstan did not have means and ecosystem to revive and sustain its defence industry. On the other hand, endeavour of Russia was to harness potential of Dastan Engineering to strengthen Russian defence manufacturing ecosystem. Russia also wanted to discourage Kyrgyzstan from moving closer to the US and prevent it from allowing the US defence forces in using Manas airbase or establish collaboration in defence manufacturing (Kucera Joshua 2015).

Kyrgyzstan was able to leverage competition between Russia and the US to seek financial assistance from both; however, it did not prove helpful in the revival of its defence industry. The condition of Dastan Engineering deteriorated due to paucity of orders for its defence products. Its privatisation benefitted political leaders as ex-President Baklev's son held 52 % shares of Dastan Engineering while leaving the remaining 48 % shares with the Kyrgyz government in 2013. Kyrgyzstan indicated willingness to sell Dastan Engineering shares to Russia to write off its debt of USD 180 million while at the same time allowed the US to use its airbase. The Kyrgyz leadership's bonhomie with the US did not give confidence to Russia to make investment. Also, weak economic condition, poor management and professional indiscretions further discouraged Russia to have a stake in the company. Also, Russia's deterioration in relations with Ukraine made Russia revisit its policy on establishing defence industrial collaborations with erstwhile Soviet states. Russia increasingly resorted manufacturing complete products within the country for filling defence industry gaps. As a result, Russia's interest in Dastan Engineering waned (Kucera Joshua 2015).

Kyrgyzstan realising challenges in reviving its defence industry established state enterprise "Kyrgyzkural" on 30 July 2009 to facilitate export, import and re-export of military products. Kyrgyzkural also became a single point of contact for research and development, manufacturing, repair, maintenance, modernisation; and procurement of defence equipment and establishing military-technical cooperation with foreign companies ("SE" Kyrgyzkural, 2019). Thereafter, it established state enterprise "Asker Kurulush" in 2013 and diversified its defence industry into producing civil-military products and undertook design and manufacturing of military communication networks, engineering facilities and construction of structures for operations, social and cultural centres and housing ("SE" Asker Kurulush, 2019). Kyrgyzstan military was also involved in production of agricultural products, raising of livestock, providing auto services and supply of consumables to military units and running retail stores in the country. Tajikistan had inherited Vostokredmet mining and chemical complex, Chkalovsk (involved in

uranium enrichment) and uranium mines in Taboshar, Adrasman and Naugarzan-Chigrik from Soviet Union. However, neither Tajikistan nor Turkmenistan inherited significant defence industry from the Soviet Union, which could be developed further (Paramonov and Stolpovki, 2008).

Conclusion

External threats, border disputes, domestic challenges, clan rivalry, and economic health defined the constituents of defence forces of the five CARs and their evolution as independent entities. The domestic threats faced by five CARs predominantly comprised of drug smuggling, clan-rivalry, radicalisation, their nationals joining terrorist organisations and human trafficking while external threats comprised of border disputes, infiltration of terrorists, protecting land, maritime and airspace boundaries against external aggression; and preventing political, economic and diplomatic exploitation. Terrorism was a major threat for the five CARs and neighbouring Afghanistan-Pakistan region emerging as a breeding ground for radicalisation, training of terrorist elements and their proliferation increased their challenges.

The defence forces of five CARs; especially Tajikistan and Kyrgyzstan, lacked necessary organisational structures, defence industry, training and defence equipment for addressing their internal and external threats. After the disintegration of Soviet Union, Russia retained most of the design and development capabilities while CARs inherited limited portions of manufacturing facilities, which lacked holistic ecosystem to survive. The CARs struggled to revive remnants of the Soviet Defence industry due to the lack of comprehensive ecosystem. Lack of infrastructure, limited capability to undertake R&D, non-availability of holistic ecosystem and economic viability adversely impacted the state of defence industries of five CARs. Poor economic conditions limited their options for operationalising their respective defence industries.

Kazakhstan and Uzbekistan made some endeavours to revive their defence industries. Kazakhstan managed its relations with Russia and Western countries better than Uzbekistan, which helped in the revival and reorientation of its defence industry. It focused on building domestic defence manufacturing and MRO capability as well as leveraged procurements for establishing joint ventures and collaborations with leading defence manufacturers to fill technology gaps. The other three CARs had negligible defence industry and were dependent on Russia, China and other countries for acquiring defence equipment. As a whole, paucity of funds, lack of technical expertise and absence of holistic defence industrial ecosystem adversely impacted survival and re-orientation of remnants of the Soviet-era defence industry inherited by the CARs. However, their willingness to allow use of their military bases, erstwhile Soviet-era

training and testing facilities and establishing mutually beneficial defence cooperation in certain specific areas helped them in establishing defence cooperation with other countries.

CHAPTER- 3

CARs DEFENCE COOPERATION WITH EXTERNAL ACTORS AND MULTILATERAL ORGANISATIONS

Introduction

This chapter studies CARs' defence cooperation with three big powers of the period, i.e. Russia, the USA and China. The defence forces and defence industries of the erstwhile Soviet Union were holistic and under a single command; however, after the disintegration of Soviet Union, none of the newly independent CARs had requisite elements of defence forces and defence industrial ecosystem. Therefore, they had to look outwards for establishing bilateral and multilateral defence co-operations to counter threats from internal upheavals, external threats and protect their large borders.

After the disintegration of Soviet Union, Russia, the most powerful nation among the 15 newly formed states and inheritor of important portion of Soviet defence industry and well-equipped defence forces appeared to be the natural choice for CARs to establish defence cooperation. Russia after initial neglect, took measures to strengthen its own military and military-technical capability as well as establish defence cooperation with CARs through bilateral and multilateral arrangements. At the same time, there were apprehensions of powerful Russia becoming a hegemonic power in the region while independence offered CARs an opportunity to establish new alliances with other regional and global powers and follow independent defence cooperation policies. During this period, the US and other global powers were looking to establish a foothold in the region while emerging power China was examining its options carefully for establishing defence cooperation with the CARs. This chapter examines pattern of defence cooperation of CARs with Russia, the US and China through bilateral as well as multilateral engagements between 1992 and 2016.

CARs' Defence Cooperation with Russia

During the early 1990s, Russia, the strongest Soviet state in the post-USSR era, was looking to reestablish connect with erstwhile Soviet facilities in CARs to sustain its defence industry and create strategic depth by establishing bases in the former Soviet countries located on its periphery. Russia initially overlooked defence and defence industrial cooperation being established by newly independent CARs with other countries. The CARs experimented with new opportunities and established defence cooperation with regional and global players including the US and China. The erosion of influence in the region forced Russian leadership to review their approach and focus on developing capabilities and partnerships to re-establish their predominant position in the region. By the end of 1990s, Russia under the new leader President Putin initiated measures to strengthen defence engagement with CARs. Russia also initiated defence reforms in 2008 to revitalise its defence manufacturing industry. It focused on strengthening defence cooperation with CARs through bilateral defence cooperation as well as through multilateral organisations like CIS and CSTO. This section examines pattern of defence cooperation between Russia and CARs.

Kazakhstan Russia Defence Cooperation

Kazakhstan's defence cooperation with Russia was based on its need for protecting its large territory, maintenance on Soviet origin defence equipment, abandoning of nuclear weapons, its endeavours in building professional defence forces, space, conventional missiles and defence manufacturing capability. Kazakhstan needed military-technical support to build all the three elements of defence forces, i.e. Ground forces, Air Defence Force and Navy to protect its land, airspace and coastal areas.

It created organisational structures for uniformed forces comprising Defence Forces for providing protection against external aggression, Frontier Forces for guarding borders and Internal Security Force for addressing internal security challenges that were being posed by spread to terrorism, drugs, crime, etc. The common Soviet-era defence equipment inherited by the Kazakh defence forces comprising ground forces, airmobile and rocket forces, artillery and air defence force (comprising air force and air defence force) provided them common platform for establishing defence cooperation. Russian military-technical expertise on defence technology

including in repair, overhaul and upgrade defence equipment in a cost-effective manner was essential for sustenance of newly formed Kazakhstan defence forces. Russian support was also needed to maintain peace along its borders since its Frontier Service (Border Guards) and Coast Guard were inadequate for protection of its large borders. In addition, personnel of Kazakhstan's newly formed military built on Soviet military model lacked training. Therefore, Russia possessing holistic space, military-technical infrastructure, defence manufacturing and military training facilities was an important player in Kazakhstan's transition as an independent nation (Eric Marat, 2012).

After becoming an independent nation in 1991, Kazakhstan gave up nuclear weapons and focused on developing robust defence forces and defence industry. It made concerted efforts in maintaining cordial relations with Russia. Kazakhstan-Russia Treaty of Friendship, Cooperation and Mutual Assistance of 25 May 1992 laid foundation of cooperation between their militaries, which was reviewed and protocol of amendments was signed on 7 July 2012. Thereafter, they signed the "Military Cooperation Treaty" on 28 March 1994 (RKMC-1994) and established the Intergovernmental Cooperation Committee (ICC) in 1997 to strengthen cooperation, whose scope included defence and space cooperation. ICC had dedicated Baikonur Space Ground and military-technical cooperation sub-committees, which remained Russia's top priority due to strategic significance of Kazakh satellite and missile launch facilities (TERF 2020). Kazakhstan and Russia signed declaration of "eternal friendship and alliance for the 21st Century on 6 July 1998 followed by agreement on Joint planning for employing military forces for security of both countries in January 2004, which further enhanced the scope of defence cooperation (Pramonov and Stolpovski 2008). The Joint Operating Plan signed on 19 December 2012 was focused on strengthening joint military operations capability (TERF, 2020).

Kazakhstan's doctrine highlighted its concerns about border disputes and spread of terrorism, which emphasised that its military needed to prepare for facing external and internal threats including spread of terrorism due to instability in Afghanistan, asymmetric threats, international terrorism, ethnic and religious extremism, and illegal proliferation of weapons. Kazakhstan defence forces faced manpower and resource challenges to protect its large and porous borders. To address these challenges, its doctrine emphasised the need for improving mobilisation training of regular troops, mobilisation and training of reserves to prepare its defence forces for taking on external and internal contingencies spread over its large territory. It

also established collaborations and increased bilateral defence engagements with other countries especially Russia to improve standard of training of its defence personnel (Kazakh Military Doctrine, 2011).

Kazakhstan harboured ambitions of building domestic defence manufacturing, repair and overhaul capability and it was the only country from Central Asia, which hosted independent Defence Expo to showcase products of its domestic and international defence manufacturers. Kazakhstan laid emphasis on local production and establishing of joint ventures to improve its defence industry. Russia remained a key partner in the Kazakhstan defence-technical cooperation program especially during the first two decades of its independence. Its doctrines laid emphasis on taking measures to improve efficiency of domestic defence industrial enterprises, scientific and scientific-technical organisations for strengthening defence capability (Kazakh Military Doctrine, 2011).

Kazakhstan defence industry comprising Granit Joint Stock Company Mashinostroitel'ny zavod im Kirova, Ural'sky zavod "Zenit" Joint Stock Company and ZIKSTO Joint Stock Company established varying degree of collaborations with Russia for pursuing joint research, development and manufacturing. Its domestic defence industrial entities were also created research, development, testing and maintenance capabilities for defence equipment development and undertaking MRO. Its Granit Joint Stock Company located in Almaty carried out testing and maintenance of air defence systems, Mashinostroitel'ny zavod im. Kirova (Kirov Mechanical Engineering Works) located in Almaty manufactured torpedoes, Ural'sky zavod "Zenit" Joint Stock Company, Ural'sk, manufactured minesweeping equipment, mine-hunters and spare parts for torpedoes, ZIKSTO Joint Stock Company formerly known as Kuibyshev mechanical engineering works located at Petropavlovsk manufactured anti-ship mines and Zavod im. Kirova Joint Stock Company (Kirov Factory) located at Petropavlovsk manufactured naval communication equipment. Kazakhstan also established joint venture and collaborations with other countries; however, it made an effort to ensure that its relations with Russia were not adversely impacted (DIIS, 2015).

Kazakhstan established close cooperation with Russia was in the field of space, which was a dual-use domain, having applications in military as well as civil domains. Kazakhstan possessed necessary infrastructure and was witness to launching of satellites and missiles during the Soviet era. It harboured aspiration for building its own satellite launch capability, however, it

did not possess desired level of technology and resources. Kazakhstan agreed to allow Russia to use Baikonur space-launch complex (No 5 State Trial Range of former Soviet Union) for launching its heavy launch rockets, manned space stations and satellites in 1994 for a duration of 20 years. However, barely ten years after signing of agreement, an agreement was signed in 2004 to extend the lease till 2050; however, signing of Russia-Kazakhstan space cooperation agreement was not without challenges as it had gone through vigorous negotiations by overcoming divergent views (TERF, 2020).

A Joint project was also initiated for the construction of new "Baiterek Rocket launch facility" at "Baikonur Cosmodrome" for building robust space and missile launch capability. The development of Baiterek Launch Pad was estimated to cost USD 745 million, out of which USD 245 million was to be paid by Kazakhstan. The launchpad was to be built with Russian technical assistance and handed over to Kazakhstan after construction (Balyrov, 2020). Russia was to pay an annual sum of USD 115 million for the use of Baikonur space station and Kazakhstan retained rights for limited use of Baikonur space station for itself.

A low point in their space cooperation occurred due to crashing of Proton rocket that resulted in spilling of toxic fuel and causing USD89 million worth of damages in Kazakhstan. Russia as a precaution started building space vehicle launch pad in Russia's far east as an alternate to Baikonur launch site. The development of new launch site by Russia, on one hand, was aimed at creating alternate launch options while continuing to use Baikonur space launch station. Russia by extending the space cooperation agreement in 2004, ten years before its expiry had shown its intent in maintaining close relations with Kazakhstan and removing ambiguity. The agreement met Kazakhstan's aspiration of becoming a space power and reduced chances of Kazakhstan diversifying space cooperation with other countries, which could have adversely impacted Russian interests. (Joanne Lillis, 2014). In 2005, Russia-Kazakhstan signed another agreement for joint research in space exploitation and development of associated technologies. Kazakhstan's first satellite "Kazsat" assembled by Russian specialists was launched on 18 June 2006. Kazakhstan collaborated with Russia to launch satellites and integrate into Russian Glonass global satellite navigation systems (Pramonov and Stolpovski, 2008).

Russia trained Kazakhstan's military personnel, provided maintenance support to its Soviet-era weapons, upgraded them as well as supplied advanced Russian weapons under the military cooperation treaty of 1994. Military training and leasing of Kazakh military testing sites

by Russia was another area in which both countries established deep collaboration. Kazakhstan leased its military testing sites to Russia that were being used by erstwhile Soviet Union, which included testing ranges of Emba (No.11 State Test Range), Sary-Shagan (No-10 State Trial Range), the 4th State Central Testing Ground and No 929 State Flight Test Centre (TERF, 2020). Kazakhstan's testing sites having necessary infrastructure, spread over a large and sparsely populated area and located in Russia's neighbourhood were ideally suited for testing of variety of Russian strategic weapon systems including those having large ranges. Russia used adjoining Aqtobe region of Kazakhstan for research and trials of air defence weapons at its "Emba" Range. "Sary-Shagan" testing range also known as No 10 State Trials Range of Russia utilised four adjoining Kazakh geographical locations, i.e. Qaraghandy (Karaghandy, East Kazakhstan), Zhmbyl (Jambyl, South Kazakhstan), Aqtobe (North-West Kazakhstan) and Qyzylorda (Kyzylorda, South Kazakhstan) for trials of variety of air defence missiles including strategic missiles, anti-missile and anti-aircraft missile systems (Paramonov and Stolpovski, 2008).

These geographical sites equipped with requisite sensors became significant part of Russia's endeavours in monitoring and recording performance and trial data for weapons development, e.g. Missile attack warning radar at Priozersk, near lake Balkhaash was used for recording trial data of missile systems' trajectory while transiting from Kazakhs territory during trials on Russia's "Sari-Shagan" range. A section of "Kapustin Yar" range of 4th State Central Testing Ground of former USSR, located on the northern edge of Caspian Sea in Western Kazakhstan was used for trials of missiles and ammunition. The weapon firing ranges no 85, 171 and 231 of erstwhile Soviet range No.929 Flight Test Centre, named after V Chaklov, located at Atyrau in West Kazakhstan were being used for trials of new weapons by Russia (Paramonov and Stolpovski, 2008).

Kazakh testing sites were significant for revalidation and up-gradation of Soviet-era weapons as well as for the development of new weapons by Russia. Kazakhstan leveraged its defence cooperation with Russia to obtain weapons, establish R&D collaboration and seek training of its defence personnel in return. Kazakhstan paid special attention to Russia's sensitivity to presence of external powers in its neighbourhood and adopted a conciliatory approach towards Russia. However, it continued to acquire defence equipment, enabling technologies and establish collaborations with other countries.

Kyrgyzstan-Russia Defence Cooperation

After becoming an independent nation, Kyrgyzstan faced challenges due to non-availability of defence institutions, paucity of resources, trained manpower and defence equipment to protect its borders. Its Soviet-era defence industry and testing facilities faced prospects of closure, which were not only significant for defence equipment manufacturing but also provided jobs. Kyrgyzstan established defence cooperation with Russia and signed number of treaties and agreements related to defence cooperation including "treaty of friendship, cooperation and mutual assistance" dated 10 June 1992, "cooperation in defence" dated 5 July 1993, cooperation in defence equipment supply dated 25 August 1999 and security cooperation dated 5 December 2002. In 2003, it granted rights to Russia for using Kant air forces base (located east of Bishkek) till 2032. In return, Russia deployed military personnel to provide protection from internal and external security threats, supplied military equipment, trained Kyrgyz military personnel and paid fee for utilising its military infrastructure (Dmitry Gorenburg 2015).

Kyrgyzstan-Russia defence cooperation was diversified in many domains as Russia contributed in establishing Kyrgyz defence forces institutions and positioned its troops in Osh, Naryn, Karkol and "Manas" International Airport. Russian defence forces initially manned Kyrgyzstan's border with China and Tajikistan and helped Kyrgyzstan in establishing its border troops Service and handed over these responsibilities to Kyrgyz forces in a phased manner. In 2007, Kyrgyz government again sought help of Russia in manning its borders amid paucity of resources. Russia also helped Kyrgyzstan in establishing its air defence system and Kyrgyz defence forces carried out joint firing exercises in Russian "Ashuluk" range in Astrakhan Oblast of Russia annually. Kyrgyz military officers had undergone training including flying and Staff courses in Russia (Pramonov and Stolpovski, 2008).

Kyrgyzstan was home to some of the Soviet-era defence testing and other installations, which continued to be strategically important for Russia. Russia took five Kyrgyzstan military bases on lease, which included 999th Kant Air Base located 20 Km from Bishkek that was used by Russian fighter and training aircraft flying, 954th Anti-Submarine Weapon Trials Establishment "Koi-Sary" that was located in Karakol on the eastern shore of Lake Ysyk-Kol for trials of torpedoes, 338th Communication Centre in Kara-Balta (Chaldovar) in the Chuy region of Kyrgyzstan for communicating with Russian submarines and surface ships patrolling in the

Pacific and Indian ocean and for Electronics surveillance, 1st Automatic Seismic Station and 17th Radio-Seismic Laboratory in Tian Shan mountains in Ichke Suu and Majluu Suu districts respectively to monitor seismic situation in Kyrgyzstan. (Pramonov and Stolpovski, 2008).

Kyrgyzstan looked up to Russia for reviving remnants of Soviet-era defence industry. The agreement between Russia and Kyrgyzstan on cooperation in "defence research, development and manufacturing firms" was signed in 1994 and as a result, certain joint ventures for manufacturing defence equipment were set up in Kyrgyzstan. Some of the key joint venture companies included "Datan" Joint Stock Company (JSC) in Bishkek to manufacture VA-111 "Shkval" rocket torpedos, "Ozero" located in Karakol near Lake Ysyk-Kok for developing "Shkval-E", an export version of "Shkval" torpedo, "Ainur" JSC and Bishkek Stamping Works for manufacturing cartridge cases for infantry weapons and "Zhanar" JSC in Bishkek for producing radars beams and Magnetometer sensors since 2002 (Pramonov and Stolpovski, 2008).

In February 2009, Russia and Kyrgyzstan signed a memorandum of economic and financial cooperation in which Russia pledged a grant of USD150 million to Kyrgyzstan state budget, USD300 million loan for procuring military equipment and USD 1.7 billion investment into joint Kyrgyzstan-Russian company for building a hydropower plant. Russian was to establish a military base in Kyrgyzstan under the SCO forum that could be used as a launching base for undertaking counter-terrorism operations.

Kyrgyzstan also established defence forces organisational structures and institutions. Its decree titled “On Regulations of the Ministry of Defence” promulgated in June 2009 defined roles of its armed forces’, which included formulation of plans, doctrines and regulations; conditions for combat readiness, procurement, protection of borders, military and economic facilities, and airspace during peace and war, undertake training and anti-terrorist operations, protect against Nuclear, Biological and Chemical (NBC) threats, establish military-technical cooperation; and modalities for import and export of defence equipment (Eric Marat, 2012).

Tajikistan-Russia Defence Cooperation

Tajikistan being a small country with meagre resources needed external help in establishing defence forces and their organisational structures. Russia being the erstwhile Soviet country and a regional power was its natural partner. Tajikistan's "law on defense" first published in 1995 (with amendments till 2014), Military Doctrine of 2005 and Law on National Security of 28 June 2011 were some of the founding documents that defined contours of its defence forces. They laid down responsibilities of defence forces in protecting the state from aggression when all measures to resolve inter-state disputes and conflicts through political process have failed (Tajik Defense Law, 1995).

After independence, Tajikistan faced an acute shortage of officers due to migration of former Soviet-era defence officers of Russian ethnicity to Russia. It depended heavily on the presence of Russian military personnel and advisors for protecting its borders and building military institutions respectively. It also sought Russian assistance for training its military officers. Russia became an important player that supported establishment of Tajik defence forces and provided support to Tajik defence forces during the civil war between 1992-96. Russia-Tajikistan agreement dated 21 January 1997 provided the basis for setting up of office of Russian Chief Military Advisor in Tajik Ministry of Defence, Tajik military formations and units. On 25 May 1993, Russia and Tajikistan signed Military Cooperation Treaty, which came into force on 17 November 1993 (Belosludtsev and Gribovsky 2019).

In 1993, a peacekeeping force led by Russia was deployed in Tajikistan under the aegis of newly formed CIS, which was later disbanded in the year 2000. (Pramonov and Stolpovski, 2008). Russia also assisted Tajikistan in establishing its air defence forces and Tajik air defence units started participating in firing exercises at "Ashuluk" range in Astrakhan Oblast of Russia since 2001 for air defence training. Tajikistan with the strengthening of military decided to replace Russian troops deployed on China and Afghanistan borders with its own troops. However, it soon faced challenges in protecting its borders due to limitations of manpower and resources. Therefore, it again signed an agreement with Russia in 2004 to station Russian troops in Tajikistan. As a result, Tajikistan became home to the largest Russian base abroad as Russia deployed ten military units and detachments including 4th Military Base (formerly 201st Division) at Dushanbe, 670 Air Group and 303 Helicopter Squadron at Aini Airfield near

Dushanbe. In October 2013, Tajikistan extended the deal that allowed Russia in maintaining a military base in Tajikistan. (Marcel de Haas, 2016).

Tajikistan did not inherit defence industry and its military-technical cooperation with Russia was insignificant. Tajikistan's defence industrial cooperation with Russia was negligible except for a five million agreement in 2006 for salvaging solid rocket fuel residue from Taboshar facility. It also obtained Russian military equipment as well as assistance in maintenance of defence equipment. Tajikistan was an important country for Russia as it provided depth to Russian air and missile defence system. Its 1109 Electro-Optical Unit of "Okno" Space Surveillance System (Object 7680) at Sandlok Mountains near Nurek was used by Russia for detecting ballistic missiles (Pramonov and Stolpovski, 2008).

Turkmenistan-Russia Defence Cooperation

Turkmenistan's approach to establishing defence cooperation was similar to the one followed by other CARs. However, its defence cooperation policy underwent a major change after it adopted the policy of "permanent neutrality" in 1995. Turkmenistan had earlier established bilateral defence cooperation with other countries including Russia during the formative years to establish military institutions, undertake training and acquire defence equipment. Russia and Turkmenistan signed the treaty on "Joint Measures to create armed forces of Turkmenistan" on 31 July 1992. The treaty mandated that air force, air defence and border forces of erstwhile Turkestan Military District remained under Russia while land forces were handed over to newly formed Turkmenistan. In return, Russia gave guarantee to Turkmenistan for providing security, positioned units of its armed forces, helped Turkmenistan establish its defence forces and paid compensation for positioning its troops. A joint task force steered establishment of Turkmenistan defence forces and training of its personnel between 1992 and 1994. Russian Federal Border Service established an operational group in 1994 to collaborate with Turkmenistan's defence forces for protecting its border adjoining Iran and Afghanistan.

The deterioration in their relations resulted in disengagement in military cooperation comprising disbanding of joint command in 1994, followed by withdrawal of Russian troops in 1999 and complete disengagement in defence domain by 2006. During this period, Turkmenistan established bilateral defence cooperation with Ukraine, Georgia, Turkey and other countries.

Gurbanguly Berdimuhamedov after his election as president in 2007 paid attention to the revival of Turkmenistan-Russia defence cooperation (Pramonov and Stolpovski, 2008). However, Turkmenistan continued to move towards an independent defence policy and published its "Military Doctrine" in 2009 and "Law on National Security" on 4 May 2013, which guided the development of its defence forces and defence engagement with other countries (Marcel de Haas, 2016).

Uzbekistan-Russia Defence Cooperation

Uzbekistan and Russia established defence relations bilaterally as well as through multilateral organisations; however, their relations remained mercurial with several ups and downs. Uzbekistan-Russia “friendship and cooperation treaty of 30 May 1992, agreement on “principles of mutual logistics support for the armed forces of 2 March 1994 and treaty on “further intensification of cooperation in military equipment and defence spheres” of 11 December 1999, “strategic partnership” treaty of 16 June 2004 and treaty on “alliance relationships” on 14 November 2005 provided basis for establishing defence cooperation in various domains. Both countries were involved in the establishment of CIS “Collective Security” treaty in May 1992. The CIS troops meant to create a regional security system in the post-Soviet era were immediately pressed into Service and had played an important role in assisting Tajik forces during the civil war.

The differences between the two countries emerged during the period of Russian President Yeltsin in mid-1990s. As a result, Uzbekistan expanded military cooperation with other countries and discontinued participation in CIS "collective security" system in 1999. Defence relations between Uzbekistan and Russia improved with President Putin coming to power in Russia and they agreed to cooperate in modernising, equipping and training of Uzbek armed forces. They conducted joint army and air force exercises and Russia started training Uzbek soldiers since 2005. The "strategic partnership" treaty of 2004 though provided a clause to use military facilities of each other, however, Russia did not lease any military base in Uzbekistan.

Uzbekistan being home to Turkestan Military District during the Soviet Union, inherited large inventory of Soviet origin equipment; however, it lacked a holistic defence industrial ecosystem to sustain and upgrade them. Russia provided repair, maintenance and overhaul,

supplied ammunition, modern arms and equipment including aircraft and land systems to Uzbekistan. The joint research, development and manufacturing cooperation in the famous TAPOiCh was established with Russian help in which Russia hold the majority stake. TAPOiCh was the largest transport aircraft manufacturing entity; however, their collaboration ended with closing of the plant towards the end of study period (Pramonov and Stolpovski 2008). The relationship between the two countries remained unpredictable due to differences on certain issues and Uzbekistan's aspiration for expanding defence cooperation with Western countries especially the US. Uzbekistan's relations with the US deteriorated following the US criticism of Uzbekistan's poor human rights records in 2005, which created space for improving defence cooperation between Uzbekistan and Russia.

There was a slow but steady improvement in relations with Russia and both countries signed an agreement during the visit of Russian President Putin to Uzbekistan in 2014 in which Russia agreed to train about 3000 Uzbek armed forces officers in Russian military training institutes (Gorenburg Dmitry, 2015). This was followed by Uzbekistan signing Military-Technical cooperation agreement with Russian Federation on 29 November 2016 for enhancing cooperation among defence forces and military-industrial entities for filling technology and training gaps of its defence forces (Uz Daily, 2019).

Shavkat M Mirziyovev, who took over as an interim president on the death of Islam Karimov in early September 2016 and later as an elected President in December 2016 initiated measures to ease tensions with neighbouring CARs as well as explored ways for enhancing defence cooperation with other countries. The elevation of Mirziyovev also set into motion review of defence policy, updation of defence doctrine and re-organisation of defence forces, which could influence structure and employment philosophy of its defence forces and their cooperation with regional and international players. These changes could lead to renewed emphasis on re-building defence industrial set up in the times to come (Ibragimov MM, 2019).

Collective Security Treaty (CST) to Collective Security Treaty Organisation (CSTO)

The newly independent CARs formed after the breakdown of Soviet Union in late 1991 were vulnerable as they individually lacked necessary defence institutions, economic and military resources, trained manpower and defence equipment to protect their borders, counter-terrorism and external aggression. Therefore, a need was felt for establishing a collective political-military entity to provide political, diplomatic and military assistance to each other for protecting their independence, territorial integrity and sovereignty. Four Central Asian Republics of Kazakhstan, Turkmenistan, Tajikistan and Uzbekistan were among the 11 former Soviet states that formed CIS on 21 December 1991. The other members of CIS were Azerbaijan, Armenia, Belarus, Georgia, Maldova, Russia and Ukraine. The formation of multilateral forum like CIS was an initiative taken by Russia to bring newly independent Soviet-era states under one umbrella. The secondary objective of CIS was to discourage member states from establishing defence engagement with external actors especially Western nations in establishing political, economic, diplomatic and military cooperation that would be unfavourble to member nations of the region. The endeavour was to bring all the former Soviet states under CIS; however, protocol of CIS agreement was signed by only 11 states out of 15 former Soviet states as the four former states of Estonia, Latvia, Belorussia and Lithuania did not join due to differences on some issues.

The idea of collective military vertical in the CIS gained acceptance among the member states, as they did not have independent and holistic defence forces. As a result, Armenia, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan signed the Collective Security Treaty (CST) at Tashkent, Uzbekistan on 15 May 1992 while Azerbaijan, Belarus and Georgia joined the treaty in 1993. The CIS was immediately put to test after Tajikistan plunged into civil war in 1992 as rebels after losing the war fled to Afghanistan and other neighbouring countries and started insurgency against Tajik government. As a result, CIS countries comprising Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan decided to deploy a CIS Collective Peacekeeping Forces in Tajikistan on 24 September 1993 to normalise the situation on the Tajikistan-Afghanistan border. The rebels reorientated their movement for a protracted civil war (UNMOT, 2020).

The treaty officially came into force for a period of five years in 1994 after ratification by nine member states except Ukraine and Turkmenistan, who did not ratify its charter. The scope

of treaty was enlarged in due course to include providing military support by member states in case of an armed attack that threatened their safety, territorial integrity and sovereignty, international terrorism, transnational crimes, undertake peacekeeping operations and provide Humanitarian Assistance during calamities (CSTO, 2020).

The defence cooperation between CIS countries was strengthened and they established an integrated air defence network on 10 February 1995. They established robust collaborative air defence network comprising Soviet origin and Russian fighters, i.e. MiG-29, MiG-31 and Su-27 aircraft and fighter-bomber aircraft; S-200 and S-300 Surface to Air Missile systems, Electronic Support and Electronic Warfare units. The joint air defence system was meant to defend member countries against air and space threats collaboratively; however, air defence system was largely dependent on Russia for providing advanced sensors, missiles and fighters. Russia also deployed its units in member countries and provided sensors and weapons to member states on concessional rates through military-technical cooperation mechanisms for commonality of equipment, synergy in training and undertaking air defence operations. However, approach of Russia was slightly different from former Soviet Union, which overlooked economic consideration while establishing defence cooperation. Russia supplied weapons to CIS member states at concessional rates but rarely supplied high-value weapons free of cost (CSTO, 2020).

The Collective Security Treaty of the CIS was a regional treaty with Russia being the lead player, however, its membership had shrunk with time. Some member states found defence engagement to be less relevant to them while others paid greater attention to establishing cooperation with other countries. Overall, Russian influence was declining despite its policy of providing assistance of member states through military-technical cooperation, collaboration in defence research and development and supply of defence equipment to member states. This aspect was apparent as its three members, i.e. Azerbaijan, Georgia and Uzbekistan exited at the time of extension of the treaty in 1999 (CSTO, 2020).

The governing council of CST decided to convert it into an international regional organisation by joined the UN in 2002 and renamed CST as CSTO. CSTO aiming to enhance its acceptance as a global organisation had registered with UN for sending its troops for peacekeeping missions; establish military-technical cooperation, countering security challenges, drug trafficking, information security and emergency response (CSTO, 2020).

The CSTO Council of Ministers of Defence guided its military affairs, drew up strategies for military-technical cooperation, created joint institutions and mechanisms like Rapid Reaction Forces for Central Asia and Air Defence System, to collectively protect interests of member states and created peacekeeping forces to undertake operations under the aegis of the UN. Its members also established bilateral border force mechanism like Russian-Belarusian and Russian-Armenian defence forces to meet specific needs to respective member countries (Dmitry Stefanovich 2018). The CSTO governing council organised joint training exercises at regular intervals, which covered wide-ranging scenarios including anti-terror, information security, air defence, etc., These exercises were conducted in different member states on rotation basis to train for joint operations in envisaged scenarios of the host countries (TJF, 2002).

Turkmenistan after initial reluctance and delay for more than a decade declared its intention to engage CIS as associate member on 26 August 2005 (MFA Armenia, 2020). Uzbekistan rejoined CSTO in December 2006; however, it did not join Rapid Reaction Forces that was established in 2009. Uzbekistan had reservations about decisions taken in CSTO summit meetings held in December 2010 and December 2011. In these meetings, procedures were formed for intervening in domestic "emergency" of member states. It also prohibited member countries from hosting foreign military basis without the approval of the CSTO. Uzbekistan decided to suspend its membership of CSTO on 20 June 2012; however, it continued to participate in the CIS air defence and other military activities (Nichol Jim, 2013).

Russia had established bilateral joint integrated air defence system with Belarus in 2009, Kazakhstan in 2013 and Armenia in 2015. Kazakhstan had acquired five S-300 PS/ SA-10B long-range air defence missiles to Kazakhstan in 2013 while other two members of CSTO from Central Asia, i.e. Kyrgyzstan and Tajikistan had not acquired these advanced AD missile systems till 2016. The reason for non-acquisition of advanced air defence systems from Russia appeared to be due to their inability to pay for such systems (Leo-Paul Jacob 2017). The CSTO air defence exercises involving large forces were conducted to operationalise, test and validate effectiveness of air defence network among member nations (Martin Sieff, 2008). In 2016, CSTO annual air defence exercise involved about 100 aircraft including Su-27, MiG-29 and MiG-31 fighters; Su-24, Su-25 and Su-34 bombers; and Tu-22, Tu-160 and Tu-95 long-range bombers; Ka-27 and Mi-8 helicopter; and air defence missile units from seven countries, i.e. Russia, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan had participated in the exercise.

The CSTO members had found common areas of convergence and it was flexible in accommodating former members as Uzbekistan had participated in the annual air defence exercise in October 2016 despite having left the membership of CIS. These exercises retained Soviet characteristics as they were conducted in Russian language, with predominantly Russian equipment and military philosophy. All the six CSTO member states including three CARs, i.e. Kazakhstan, Kyrgyzstan and Tajikistan benefited from an elaborate and integrated air defence system consisting of sensors, aircraft and missiles, which they could not have developed or acquired them independently due to economic and technological limitations.

The CSTO mechanism provided strategic depth to Russia as it gained more reaction time due to deployment of integrated aerial surveillance and air defence system in neighbouring countries. On the other hand, Russia gained intangible benefits as CSTO mechanism discouraged CSTO members from establishing defence cooperation with the West especially the US (MODRF, 2016). In 2016, CSTO adopted a Collective Security Strategy that was valid up to 2025. The enhanced validity of the treaty to ten years indicated stabilisation of treaty and growing confidence among the member states. Its joint military element had grown, which included a 20,000 strong Collective Rapid Reaction Forces (CRRF) (CSTO, 2020).

Amongst the CARs, Kazakhstan, Kyrgyzstan and Tajikistan remained permanent members of CSTO while Uzbekistan moved away from CSTO and yet participated in air defence joint exercises (McDermott, 2003). Kazakhstan's military ties with Russia remained significant in the post-Soviet era as Kazakhstan solicited Russian assistance through bilateral as well as through the CSTO for countering transnational terrorism and extremism (Voloshin George, 2015). Kazakhstan had established Collective Rapid Reaction Forces in line with the collective security requirements of joining CSTO. Kazakhstan's doctrine indicated its endeavours on leveraging joint operational and combat training exercises with Collective Rapid Reaction Forces of the CSTO for improving training and increasing combat readiness of its defence forces (Kazakh Military Doctrine, 2011).

The evolution of the CSTO, pattern of defence cooperation and approach of CARs suggest that apprehensions about Russian domination, binding clauses of collective security treaty, aspirations to explore Western technologies and tactics, motivated some of the newly independent former Soviet countries like Uzbekistan to move away from CSTO. Turkmenistan on the other hand, distanced itself from multilateral organisations like CSTO due to its policy of

permanent neutrality though it was open to bilateral engagements. The CSTO was viewed to be a partial success due to reduced membership and declining influence of Russia though Russia still remained a predominant power in the region.

CARs Defence Cooperation with the US

The five CARs looked at the US for establishing defence cooperation to support development of defence organisational structures, procure defence equipment and train defence personnel. On the other hand, the US viewed CARs to be important players in the backyard of Russia. The level of defence cooperation between the other CARs and the US differed depending upon their respective policies and bilateral equations. The US endeavours in establishing defence cooperation with the CARs were also aimed at establishing foothold in the region.

After the 11 September 2001 terrorist attack, the US approached CARs for using their defence facilities for its war on terror. Amongst the five CARs all the nations except Turkmenistan had shown willingness to host the US troops and establish defence cooperation. After due deliberations, the US decided to operate British and French troops of ISAF from Dushanbe in Tajikistan while German troops operated from Termez in south Uzbekistan. On the other hand, the US troops operated from Karshi-Khanabad (K2) in Uzbekistan and Manas International airport in Kyrgyzstan. Neither the US led International Security Assistance Force (ISAF) nor the US troops used military facilities of Turkmenistan, which kept a low profile in establishing regional and international defence alliances due to its declared policy of permanent neutrality. The US allotted USD 36.207 million to Uzbekistan, USD 11 million to Kyrgyzstan, USD 4.750 million to Kazakhstan and USD 3.7 million to Tajikistan under the US Foreign Military Financing (FMF) in 2002, which was more or less in the order of assistance provided by these countries to the US. (McCarthy 2007).

Central Asian Battalion (CENTRASBAT) and the "Regional Cooperation" Exercise

The Central Asian Economic Community (CAEC) of Kazakhstan, Kyrgyzstan and Uzbekistan formed joint CENTRASBAT in 1996 to coordinate military exercises, undertake joint air

defence and other operations. Tajikistan joined CAEC in 1998; however, its participation in international exercises was minimal. The US Military's Atlantic Command under whose jurisdiction Central Asian Countries fell sponsored the first CENTRASBAT Exercise in 1997 for peacekeeping and humanitarian missions (Douglas J Gillert, 1997). The exercise was conducted in two phases in Kazakhstan and Uzbekistan in which Russia, Ukraine, Turkey, United Kingdom, Georgia, Azerbaijan and Mongolia participated. The exercise was conducted under NATO's Partnership for Peace program. After internal re-organisation by the US In 1999, the Central Asia Region was placed under the jurisdictions of the US Military Central Commands (CENTCOM). As a result, CENTCOM started sponsoring CENTRASBAT exercises (CENTRASBAT, 2020).

CENTASBAT was not a perfect example of regional or joint military Battalion as its companies were located in their own countries and their commanders were nominated in rotation. The US sponsorship of CENTRASBAT exercises led to the Battalion being viewed as an America supported entity and some of CARs started losing interest in its activities. On the other hand, the US also lost interest in promoting CENTRASBAT as it was not achieving its purpose of military engagement with CARs. This battalion remained a ceremonial entity, which was never used during operations including during IMU terrorist attacks on Tajikistan in 1999. As a result, participating CARs disbanded the CENTRASBAT battalion in 1999.

The end of CENTRASBAT and terrorist attack on the US in 2001 brought focus of the US government in enhancing the scope of defence training with the CARs, which was pursued through various US government defence cooperation and foreign assistance programs. The US introduced "Regional Cooperation" Joint training exercise. However, format of Regional Cooperation exercises was different from CENTRASBAT as its format changed from physical exercises to Command Post exercise. The first exercise was conducted at Ramstein Air Base in Germany in 2001. The "Regional Cooperation" exercise with an exception of 2002 and 2003 became annual multinational exercise on counter-terrorism, border security and peacekeeping operations with its focus being on Central Asia. Pakistan along with Kazakhstan, Kyrgyzstan, Tajikistan and the US participated in the Regional Cooperation Exercise that was sponsored by the US CENTCOM. The exercise was conducted from 16 to 28 September 2016 at Massachusetts, USA (Regional Cooperation, 2016).

Kazakhstan's Defence Cooperation with the US

Kazakhstan possessed a large number of nuclear weapons and was home to Semipalathinsk, one of the two major Soviet-era nuclear weapon testing sites. Kazakhstan- US defence cooperation commenced with Kazakhstan, Ukraine, Belarus, USA and Russia signing the Strategic Arms Reduction Treaty on 23 May 1992 with an aim to dismantle Soviet-era nuclear weapons from Kazakhstan. Kazakhstan took decision to give up nuclear weapons in 1993 and had transferred all Soviet-era nuclear weapons to Russia and removed 1416 nuclear warheads by 21 April 1996 (NNS, 2020). On the other hand, the US had provided assistance to Kazakhstan between 1995 and 2001 in neutralising nuclear test sites by sealing their boreholes and tunnels under the Nunn-Lugar Cooperative Threat Reduction Program. Kazakhstan also transferred about half a ton of weapons-grade Uranium to the US by 1994, removed last nuclear warhead by 1995 and completed sealing of 181 tunnels at Semipalatinsk Test Site (STS) by 2010 (US DOS, 2020). The site was officially closed in 2012 (NTI, 2019). The US defence assistance to Kazakhstan after 2000 was moderate, which included supply of barracks at Atyrau, High Mobility Multipurpose Wheeled Vehicle (HUMMWV colloquially known as Humvee), patrol boats and two UH-1 Huey helicopters with refurbishment to the Huey-II configuration under the Excess Defence Articles (EDA) program (Michael J. McCarthy 2007).

The US deputed experts and opened Kazakhstan Peacekeeping Training Centre (KAZBRIG) in Kazakhstan in 2010 to train Kazakhstan soldiers. Kazakhstan military personnel started receiving specialised training from the US Special forces under the Section 1004 of National Defence Authorisation Act since 2016. (Joshua Kucera 2017). During this period, Kazakhstan had also established co-operation with the EU, and NATO (State of Nations Address, 2000). Kazakhstan elevated level of cooperation with the US to strategic partnership and became a member of coalition of international forces in Iraq and its engineering battalion played an important role in deactivation of explosives in several key areas (Letter from US President 2015). Kazakhstan was able to maintain fine balance between its collaborations with Russia and the US as it simultaneously participated in multinational "Steppe Eagle" exercise as well as CSTO peacekeeping exercise since 2012 (Sanchez Wilder Alegandro, 2019).

Kyrgyzstan's Defence Cooperation with the US

Kyrgyzstan was not a priority nation for the US in establishing defence cooperation during the first decade of independence. The first major endeavour in establishing Kyrgyzstan-US defence relations was made in December 2001, when Kyrgyzstan agreed to allow the US and coalition forces to use Manas airbase near Bishkek as the Transit Base for the US forces operating in Afghanistan. By June 2002, the US and coalition troops and aircraft were positioned in Manas and the US paid USD2 million per year as a fee for utilisation of the airfield. In the meantime, Kyrgyzstan and the US mutually agreed on a five-year defence cooperation plan in 2004 (McCArthy 2007). However, Kyrgyzstan felt that amount being paid was less and sought review of conditions for use of its facilities by the US defence forces. As a result, agreement on the use of Manas airbase was renegotiated in 2006 in which fee was enhanced to USD 17 million per year. On the request of Kyrgyzstan, facilitation fee was further enhanced to USD60 million with another USD60 million for improving the infrastructure of the airbase in 2009 (US CENCOM, 2019). Kyrgyzstan though did not insist on the withdrawal of the US forces but it demanded a higher fee for using its facilities to leverage increased significance of these bases for the US forces. However, the US decided to discontinue using the Kyrgyz facilities and vacated the Manas airbase in July 2014 (Dzyubenko, 2014). The US withdrawal maintained defence engagement with Kyrgyzstan despite the withdrawal of its troops. The US Special forces trained Kyrgyzstan National Guard and Ministry of Defence personnel under the Section 1004 of National Defence Authorisation Act, which was suspended by the end of 2016 (Joshua Kucera 2017).

Tajikistan's Defence Cooperation with the US

Tajikistan- USA relations were established in 1992 and the US started providing Tajikistan with aid for food and other humanitarian needs; however, the US did not establish defence cooperation or provided defence assistance to Tajikistan till the end of 199Os due to its concerns over its human rights records. However, civil war in 1997, attacks by IMU in 1999 and 2000, and 11 September 2001 terrorist attacks in the United States changed the scenario and created a

favourable situation for establishing defence cooperation between the two nations. Both countries signed an agreement for defence cooperation including modalities for utilisation of Tajik facilities by the military and civilians of US DoD on 23 November 2001. The US defence cooperation was steered by the Office of Military Cooperation, US Embassy and US Central Command (CENCOM) (Tajikistan-US Defence Agreement, 2001). Tajikistan with tacit understanding with Russia allowed the US and coalition forces to use its airspace and airfields. An endeavour was made to formulate five-year defence cooperation plan between Tajikistan and the US, however, it was not operationalised (McCarthy 2007).

In 2009, Tajikistan and the US reached an agreement to allow the use of Tajik territory for transit of construction materials associated with military operations of ISAF in Afghanistan. Tajikistan land route catered to a small portion of ISAF supplies. It was an alternate route Northern route via Uzbekistan and ISAF began using this route for movement of materials out of Afghanistan in March 2012 (Nichol Jim, 2013). The US military support to Tajikistan increased as its military started receiving training from the US Special forces under the Section 1004 of National Defence Authorisation Act. In addition, the US Army Special forces training teams were stationed in Tajikistan to train Tajik National Guards personnel (Joshua Kucera 2017).

Turkmenistan's Defence Cooperation with the US

Turkmenistan was one of the first Central Asian countries to establish an independent Ministry of Defence in 1992. It distanced itself from joining multilateral alliances especially after the adoption of permanent neutrality in 1995. It neither established defence cooperation with any particular multilateral organisation nor offered its defence forces units and infrastructure for use by external forces. This reduced its attractiveness for external powers like the US and NATO to establish military alliances. However, it established limited bilateral defence cooperation with other countries including China, Iran and Turkey.

Uzbekistan's Defence Cooperation with the US

Uzbekistan being the inheritor of the largest Soviet-era defence forces in Central Asia, initially collaborated with Russia; however, by mid-1990s it started establishing defence cooperation with

NATO,[18] the US and other Western powers. Uzbekistan joined NATO's PfP program in 1994 as well as obtained non-lethal security assistance and training for Uzbek soldiers through the US FMF, International Military Education and Training (IMET) and other programs (Mariya Omelicheva, 2019). According to a study in the US Air University, Uzbekistan had shown keen interest in increasing engagement with the US and offered permanent bases to the US as early as in 1998, which was not availed by the US at that time (McCarthy 2007).

After the 11 September 2001 terrorist attack, Uzbekistan was the first CAR to offer its military base at Karshi-Khanabad (K2 base) to the USA to support its military operations in Afghanistan in its war on terror, which the US accepted. The signing of the "Declaration on Strategic Partnership and Cooperation Framework" between Uzbekistan and the US on 12 March 2002 provided the foundation for the US defence forces to operate from Uzbek territory. The US defence cooperation with Uzbekistan not only facilitated US military operations in Afghanistan in its Global War on Terror (GWOT) but was also viewed by some experts as counterweight to two big powers of the region, i.e. Russia and China.

The colour revolutions in Georgia, Ukraine and Kyrgyzstan against their governments between 2003 and 2005 created concerns in Uzbekistan about potential support of the US and other Western powers to anti-government forces. On the other hand, the US Secretary of State Collin Powel's non-certification of Uzbekistan about human rights progress in December 2003 and stopping of USD 10.5 million aid including USD 6.87 million military aid, resulted in souring of relations between the two nations. The US vacated K2 base in 2005, which was seen as US losing strategic foothold in the region. During this period, Uzbekistan moved closer to Russia with the signing "Treaty of Alliance Relations" on 14 November 2005 to address its security concerns arising due to ongoing political unrests and threat posed by terrorism in the Central Asian Region (Bakshi Jyotsna, 2005). However, Uzbek government allowed Germany to maintain airbase with a small detachment of 163 troops despite straining of relations with the US.

The signs of restoration of bilateral defence cooperation between Uzbekistan and the US appeared in 2008 when Uzbekistan allowed the US military personnel to transit through Termez

[18] NATO, an international politico-military alliance was established in 1949. Its members are from North America and Europe and the number of members had increased from 12 to 30 by Sep 2020 (https://www.nato.int/cps/en/natohq/topics_49212.htm)

airbase operated by Germany on a case-to-case basis. This was followed by Uzbekistan agreeing to allow transit of US non-lethal supplies to Afghanistan in January 2009. In May 2009, it allowed the US and NATO to use Navoi airport for transhipment of non-lethal supplies to Afghanistan. The two countries expanded defence cooperation in the field of military educational exchanges and training in August 2009. Later Uzbekistan and the US CENTCOM of the US Military signed an agreement in March 2012 to allow the US military air transit of cargo and military personnel from Afghanistan (Nichol Jim, 2013).

As a result of easing of defence relations, Uzbekistan military started receiving training from the US Special forces under the Section 1004 of National Defence Authorisation Act and the US decided to donate 308 Mine-Resistant Ambush Protected Vehicles (MRAPs) and 20 Armoured Recovery Vehicles to Uzbekistan in 2015. After the death of President Islam Karimov, Uzbekistan-US defence relations strengthened and level of defence cooperation had increased by the end of 2016 (Joshua Kucera 2017). On the other hand, the US government was not comfortable in allowing sales of advanced military equipment as it refused to allow South Korea to supply 12 T-50 fighter[19] trainer aircraft having American aero-engines to Uzbekistan in a USD400 million deal in October 2015 due to security concerns (Uz Daily, 2019).

Leveraging normalisation of relations with the US, Uzbekistan expanded defence cooperation with NATO and took the help of their military experts for improving Professional Military Education in its defence services training institutions (Mariya Omelicheva, 2019). The ups and downs in Uzbekistan's relations with CSTO and its tendency to establish close relations with the US at the cost of CSTO had an adverse impact on its defence relations with other Central Asian republics (Joshua Kucera, 2015).

CARs' Defence Cooperation with China

China's strategy during the 1990s was focused on establishing economic cooperation with CARs and creating an environment for establishing defence cooperation at a later date. China also took measures to resolve contentious bilateral issues. In 1992, China, Kazakhstan, Kyrgyzstan, Tajikistan and Russia began border disarmament negotiations to overrule chances of border disputes escalating into conflicts with the newly formed states. Their vulnerable condition was an

[19] The US aviation company, Lockheed Martin is a partner in the T-50 aircraft manufacturing.

ideal opportunity to resolve such issues favourably (Sun Zhuangzhi 2020). China aiming to build confidence with Kazakhstan issued an official statement on 8 February 1995 that it would not use nuclear weapons against Kazakhstan. This was done to remove apprehensions about the possibility of China employing nuclear weapons against non-nuclear Kazakhstan (UIDIR, 2018).

In May 1996, China was one of the five countries along with Russia, Kazakhstan, Tajikistan and Kyrgyzstan, who informed the United Nations about their agreement to institute confidence-building measures on their borders and these five countries were later known as the "Shanghai Five" (Agreement 1996). Thereafter, China Kazakhstan, Kyrgyzstan, Russia and Tajikistan signed another Agreement on Mutual Reduction of Military Forces in border areas as confidence-building measures on 24 April 1997 (Sun Zhuangzhi 2020). Uzbekistan joined the group as an observer in 2000. It may be recalled that Uzbekistan had not only moved in and out of CSTO in the past but also established defence cooperation with the US, much to the dislike of Russia and other CSTO members. A year later, Shanghai Five expanded as the six countries comprising China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan signed an agreement to rename Shanghai Five and create SCO on 15 June 2001.

The aim of the SCO was to strengthen cooperation in trade, economy, defence, international and regional issues of common concern. Its Secretariat was based in Beijing while its Anti-Terrorism force was located in Tashkent, Uzbekistan, which was an assurance of Uzbekistan's continued commitment to SCO (SCO, 2020). The secondary aim of China establishing SCO was to solicit the support of CARs in securing China's interests and ensuring that the Uighur movement did not get political and other support from them. Kyrgyzstan was an important country in Chinese defence cooperation strategy as it needed Kyrgyz support in tracking and apprehending Uighurs dissidents, who often crossed over from Xinjiang to Kyrgyzstan. Kyrgyz government introduced stringent provisions that prohibited Kyrgyz nationals from supporting Uighur dissidents and punished defaulters (Refworld, 2015).

The SCO was the first-ever multi-lateral regional organisation established with the initiative of China whose underlying aim was also to counter the influence of the US. The SCO not only brought three members of Russia led CSTO, i.e Tajikistan, Kyrgyzstan and Kazakhstan from Central Asia, but also volatile Uzbekistan, who followed an independent defence cooperation policy. However, Uzbekistan had insisted on hosting the Regional Anti-Terrorism Centre of the SCO in 2003, which was agreed to (Nichol Jim, 2013). The SCO bringing Russia

and four Central Asian republics including Uzbekistan together on one platform indicated increasing influence and acceptability of China in the region.

China had strengthened defence cooperation by establishing mechanisms for bilateral training exercises with CARs. It held an anti-terrorist exercise with Kazakhstan in the vicinity of the Irkeshtam checkpoint in October 2002. It followed a similar approach in establishing defence cooperation mechanisms for military training exchanges and joint military exercises with other CARs (Kazakhstan-China Bilateral Anti-Terrorist Exercise).

The period after 2010 witnessed a significant change in China's policy of establishing defence cooperation with CARs. It moved away from establishing defence cooperation with CARs predominantly through multi-lateral organisations to more aggressive bilateral military to military and military-technical cooperation involving establishing of military bases and supply of defence equipment to CARs. As part of its new policy, Uzbekistan-China bilateral defence cooperation witnessed an upward swing with the signing of Joint Declaration on the Establishment of a Strategic Partnership on 6 June 2012. This was followed up with the Joint Declaration on Further Development and Deepening Bilateral Relations of the Strategic Partnership on 9 September 2013 (Foreign Policy Uzbekistan, 2020).

China expanded defence cooperation with CARs into military-technical cooperation with the export of HQ-9 air defence missile (FD-2000- export version of HQ-9) and other defence systems. The HQ-9 deal was reportedly signed in 2013 to replace old Russian S-200 Surface to Air Missile systems of Uzbekistan and Turkmenistan. China supplied one Battalion each of HQ-9 advanced air defence systems comprising eight launchers each to Uzbekistan and Turkmenistan by 2015. The HQ-9 missile system was supplied as part of barter arrangement involving partial payment to Turkmenistan against the supply of natural gas. The HQ-9 was sold ahead of S-300 and S-400 air defence missile systems of Russia, which was in the same class as Patriot long-range air defence missile system of the US (Joshau Kucera, 2015). China also supplied Pterodactyl (Yilong-1) MALE UAV from China in 2015 and these military deals could pave way for expanding arms trade (Sputnik International, 02 July 2019).

The meeting between Tajik President Emomali Rahmon and Chinese President Xi Jinping during the visit of the former to China on 2 September 2015 was focused on the issue of cooperation in regional security and strengthening control over Tajikistan and Afghanistan border. The two leaders later agreed to enhance the scope of defence cooperation into military-

technical domain during their bilateral meeting on the sidelines of CSTO meeting in Uzbekistan on 23 June 2016 (Tajikistan President, 2015-16).

A report in the leading newspaper had claimed that China had established a military base near Shaymak in South East Tajikistan along the Western China border sometimes in 2015-16. The deployment of Chinese military in Tajik territory was kept secret and its location came to limelight when reported by a German mountaineering expedition team member, who was interrogated by Chinese soldiers near Baza'i Gonbad inside Afghanistan at the mouth of Wakhan corridor in 2016. (Shih Gary, 2019). China had reportedly established defence posts and defence installations in Gorno-Badakhshan Autonomous Oblast (GBAO) of Tajikistan, which is located near Xinjiang and the Afghan border. The move was aimed at keeping a check on the movement of Uighurs, who were fighting along with IS terrorist group in Iraq and Syria after 2012. However, Islamic State had weakened by 2015-16 and China feared that battle-hardened Uighur fighters returning via Afghanistan and Central Asia and pose threat to security and stability of Xinjiang region of China. It strengthened the presence of defence forces as well as collaborated with CARs to track the movement of suspicious Uighur fighters and apprehend them. The stationing of Chinese troops in Tajikistan-Afghan border was also aimed at strengthening the border security. However, it raised concerns amongst locals, who were not only unhappy with the presence of Chinese soldiers but also apprehensive about potential Soviet response. However, both Tajikistan and China denied the existence of such a base despite some Western newspapers publishing stories with photographs of Chinese military units (ICG 2018).

Stephen Blake, a senior fellow, American Foreign Policy Council observed that China could be expanding its military presence in Tajikistan amid tacit understanding with Russia to protect its economic interests and counter the threat from Uighur militants. It could also camouflage its presence in Tajikistan behind the veil of providing military and logistics training to Tajik soldiers. The increasing aspirations of China and declining interest of Russia and the US were changing the dynamics of the region where both of them were willing to overlook China assuming a larger role in the region (Blank Stephen, 2019).

Turkmenistan was the only CAR that was reluctant to establish defence cooperation with multilateral organisations or allow the presence of defence forces of an external country on its territory or allow the use of its military bases due to its policy of permanent neutrality. The lack of alliance with multilateral organisations, and regional and global powers kept it away from

international politics. However, Chinese scholars viewed its weak military to be an area of opportunity to expand defence cooperation bilaterally. The supply of HQ-9 and other defence equipment by China to Turkmenistan in 2016 reinforces their policy of exploiting gaps in Turkmenistan's defence forces capabilities and policy of permanent neutrality (Ruslan Izimov, 2016).

Conclusion

The geographical location of CARs between Europe and Asia and aspirations of the US, China, and other nations to establish political, economic and defence relations had given them a privileged position. After the disintegration of Soviet Union, significance of CARs for global powers had increased and Russia being the most powerful Soviet state emerged as a key player in defence cooperation dynamics of the region. The external actors like the US and China were initially cautious in establishing defence cooperation with CARs at Russia's backyard.

During the early 1990s, lack of inclination among Russian leadership in asserting its predominant position in the Central Asian Region and aspirations of newly established CARs to look beyond Russia provided space to the US, China, and other nations for establishing economic and defence cooperation with CARs. The US was able to establish defence collaboration with CARs as well as cooperated with Kazakhstan in dismantling nuclear weapons and testing infrastructure to prevent their proliferation. Amongst the CARs, Kazakhstan followed a multi-vector defence cooperation policy and established defence cooperation in military training and military-technical domains with the US and other nations. It also allowed Russian defence forces to use its space and military testing facilities, which were of great interest to Russia. The US defence engagement with Uzbekistan, Kyrgyzstan and Tajikistan was at a relatively low level. Kyrgyzstan and Tajikistan like Kazakhstan maintained close relations with Russia while at the same time accepted defence assistance from the US and other countries. Overall, the US had consolidated its defence cooperation with CARs during the first decade, which diluted Russia predominant position in the region.

Russia during the late 1990s and early 2000 reviewed its approach and renewed endeavours in strengthening defence cooperation with CARs through bilateral as well as multilateral forums like CIS and CSTO. The terrorist attack on the US on 11 September 2001, however, changed the defence cooperation dynamics in the region as all the CARs except

Turkmenistan showed a willingness to strengthen defence cooperation and offered their military facilities to the US to support its war on terror in Afghanistan. The US established military bases in Uzbekistan and Kyrgyzstan to support its military operations in Afghanistan. The defence cooperation between CARs and the US was guided by the willingness of some of the CARs, strategic significance of CARs for the US due to their location and need for establishing military bases in the region post-September 2001 terrorist attacks to support the US war on terror.

The CARs with the leasing their military bases and transit facilities to the US defence forces for their Global War on Terror in Afghanistan became a critical partner of CARs-US defence cooperation arrangements in the region since 2002. The CARs benefitted from the US assistance in terms of payment of transit fee, and provisioning of defence training and defence equipment for counterterrorism and humanitarian assistance operations. However, some of CARs not only allowed the US to use their facilities but also joined Russia and China led bilateral and multilateral defence cooperation arrangements including CSTO and SCO.

CARs' defence cooperation with Western countries especially the US faced hurdles during mid 2000 due to their concerns about human rights abuses in CARs. Uzbekistan did not accept the US criticism of human rights abuses and demands for establishing Western model based democratic institutions. The absence of democratic institutions and lack of shared values turned initial bonhomie with the US and other Western nations into a distraught relationship. The US-Uzbekistan defence relations started deteriorating after 2002 due to colour revolutions in the region, lack of trust among the Uzbek leadership about the US intentions and concerns among the US policymakers about poor human rights records of Uzbekistan, which led to straining of defence cooperation between them in 2005. The follow on US withdrawal from the Uzbekistan military bases was a setback to Uzbekistan- US defence cooperation. CSTO and SCO provided alternate defence cooperation options to Uzbekistan. Uzbekistan revived its relations with CSTO.

Russia initiated internal reforms of its military and defence industry in 2008 to restore its position as a leading military and defence equipment manufacturer. The three CARs of Kazakhstan, Kyrgyzstan and Tajikistan maintained defence cooperation with Russia through bilateral as well as through multilateral regional organisations, i.e. CIS and CSTO. The US and Uzbekistan realised the adverse impact of disruptions of defence relations and reviewed their approaches and took measures to re-establish defence relations. The rapprochement between the US and Uzbekistan started with the easing of defence relations in 2009 and signing of an

agreement on transit of US troops to Afghanistan through Uzbekistan in 2012 brought defence cooperation between the two nations back on track.

China being aware of concerns of the strongest post-Soviet era state and regional power, Russia and its sensitivity to other countries establishing defence cooperation with the erstwhile Soviet states followed an incremental approach. In the first two decades, i.e. between 1991 and 2010, China took measures to gain the confidence of Russia by establishing economic relations with Russia and CARs and focused on resolving border disputes. At the same time, it spearheaded the formation of a multilateral organisation, i.e. "Shanghai Five" that was later renamed as "SCO" in collaboration with Russia. Its focus was on strengthening economic cooperation and establishing limited military engagement with Russia and CARs through the SCO. The predominantly economic cooperation slowly but steadily expanded into the military domain as China provided alternate option to fill the vacuum created due to the breakdown of the erstwhile Soviet-era defence ecosystem. It also made endeavours to become an important regional player by providing an alternative multilateral and multi-dimensional cooperation mechanism, i.e. SCO. The aim of its collaboration with Russia in economic domains, resolving border disputes with Russia and CARs, and creating regional economic and collective security organisation (SCO) was to make inroads into CARs.

China's defence cooperation with CARs had witnessed significant growth by the end of 2016. China's enhanced defence cooperation with CARs comprising military to military and military-technical relations was facilitated by the reduced influence of Russia, endeavours of some of the CARs to look beyond Russia to follow independent foreign and defence cooperation policies, lack of convergence with the US on democratic and human rights issues, weak economic and defence capabilities of the CARs, lower cost, easier terms of payment and absence of restrictive conditions for procuring Chinese defence equipment (Joshau Kucera, 2015).

China's cautious but deliberate and discrete approach in furthering its influence in the region by establishing deeper economic engagement between 1990 and 2010 facilitated its expansion into military domain later. Its cautious approach involving establishing of economic cooperation with Russia and CARs, and inclusion of Russia in multi-lateral political, economic and defence cooperation arrangement through Shanghai Five and SCO reduced initial apprehensions of Russia that facilitated establishing of collaboration with CARs in economic and

political domains. After 2010, China capitalised on its strong bilateral relations with CARs to establish robust military to military and military-technical cooperation.

The defence cooperation pattern of CARs had undergone significant change between 1992 and 2016. Russia faced challenges in keeping former Soviet states together through bilateral and multilateral defence cooperation arrangements. Only three out of five CARs staying on with the CSTO indicated reduced influence of Russia. The establishing of defence bases in Tajikistan, defence collaboration and sale of defence equipment to CARs were indicators of China positioning as a competitor of Russia and the US in high technology defence equipment market (Joshau Kucera, 2015).

The pattern of Russia, USA and China establishing defence cooperation with five CARs indicated changing defence cooperation dynamics of the region. The CARs established varying degree of defence cooperation with Russia, China and the US depending upon their aspirations, policies and necessities of defence assistance and protecting their interests through multilateral defence organisations. The decreased influence of Russia, increasing influence of China, the US establishing a foothold in the region and endeavours of some of the CARs to look beyond Russia remained key aspects in defining the defence cooperation dynamics in the region. The defence cooperation between CARs and three key powers, i.e. Russia, the US and China indicated that scope existed for external actors to establish defence cooperation with CARs provided aspirations, realities and sensitivities of host and regional players are taken into consideration.

CHAPTER-4

DEFENCE FORCES AND DEFENCE INDUSTRIES OF INDIA

Introduction

Indian defence forces were required to protect the seventh-largest country in the world having an area of 3.3 million Sq. km comprising 15,200 km of land border and 7,516 km of coastline. India's annual GDP of USD 2.474 trillion and a healthy growth rate of 8.256 % in 2016 provided the necessary economic strength to build and equip strong and professional defence forces (India's GDP, 2018). India defence forces comprising army, navy and air force were equipped to protect Himalayan mountain ranges in the north, deserts in the west, eastern Himalayan hills in the north-east and the peninsular region in the south of India. Indian Navy was required to protect its large maritime boundaries comprising Bay of Bengal in the east, Arabian Sea in the west, the Indian Ocean in the south and Andaman and Nicobar islands located 1200 km south-east of the Indian mainland.

India had unresolved border disputes with its neighbours, China and Pakistan. Its other security challenges included Naxalism[20], smuggling of counterfeit currency, drugs, etc. Indian defence forces faced Pakistan abetted clandestine activities and terrorism especially in the northern state of Jammu and Kashmir while Indian defence forces had to be vigilant against expansionist China with whom it shared long and difficult borders along the Himalayan ranges while its relations remained stable but uneasy. Indian defence forces in addition to protecting borders were engaged in counter-terrorism, counter-insurgency and Humanitarian Assistance and Disaster Relief (HADR) operations during the different periods and in different parts of the country. India defence forces fought four wars with Pakistan and one with China, out of which,

[20] Naxalism insurgency starting in the Indian state of West Bengal in1967 due to economic and social exploitation of the lower strata of the people.

India-Pakistan conflict at Kargil in 1999 was the only one, which took place during the period of study.

To meet its defence equipment requirements, India established a robust public sector defence industry by setting up Ordnance Factories (OFs), Defence Research and Development Organisation (DRDO) and Defence Public Sector Units (DPSUs) after becoming an independent nation in 1947. India's domestic defence industry led by the public sector was aimed at reducing dependence on imports and become self-reliant. However, its domestic defence industry was not encouraged to export its products, which impacted their economic viability. Limitations of resources and other gaps in defence industrial ecosystem added to their challenges. India's defence industry despite being promising met limited requirements of its defence forces that forced India to import most of the defence equipment. By 1960s, Soviet Union became the largest supplier of defence products to India; however, the disintegration of Soviet Union in 1991 disrupted India's supply chain of Soviet-era defence equipment, which adversely impacted operational readiness of its defence forces. India in due course had become one of the largest spenders on defence imports and accounted for 5 % of the global defence expenditure on imports. This made India realise the necessity of achieving self-reliance and making its industry competitive. India took several corrective measures which included a review of policies and allowing participation of private sector companies, foreign direct investment, launching initiatives like Make in India and Strategic partnership to energise its defence industry as well as promote export of defence products.

The newly formed Central Asian Republics having civilisational links and remnants of Soviet-era defence industry appeared to be India's natural partners for establishing cooperation between their defence forces and defence industries. However, whether the remnants of defence industry inherited by CARs was complementary to the requirements of Indian defence industry and vice versa? Could defence forces of India and five CARs benefit from establishing cooperation with each other? Could they have established meaningful and mutually beneficial cooperation between their defence forces and defence industries? All of these aspects had to be ascertained. Therefore, an understanding of capabilities, challenges and limitations of defence

forces, and defence industry of India was needed to examine the potential for establishing defence cooperation with the five CARs subsequently. Towards this aim, this chapter discusses evolution, strength and challenges of defence forces, participation of Indian defence forces in wars, counter-insurgency, counter-terrorism and peacetime operations, and evolution, capabilities and challenges defence industries of India.

Defence Forces of India

India inherited defence forces from British after becoming an independent nation in 1947. The President of India became the supreme commander of defence forces; however, the responsibility of defence of India rested with the democratically elected Cabinet of Ministers headed by the Prime Minister. The Union Cabinet of Ministers exercised executive control over defence forces through Defence Minister (Raksha Mantri), Chiefs of Staff Committee (COSC), and Chiefs of Army, Navy and Air Force. The Ministry of Defence (MoD) had four departments with Department of Defence (DoD) taking care of operations, Department of Defence Production (DDP) dealing with the production of defence equipment by public sector units, Department of Ex-Servicemen Welfare addressing issues related to a large number of Ex-Servicemen and lastly, DRDO pursuing research and indigenous development of defence products in India (MOD, 2018).

After independence, India built its military capabilities to counter threats from its two neighbours and potential adversaries, i.e. China and Pakistan. The preparation, size and deployment of Indian Defence Forces was predominantly focused on Pakistan for almost first seven decades; however, towards the end of the study, India started viewing China to be a bigger threat. China's rising capability of its defence industry in manufacturing advanced defence equipment as well as restructuring and modernisation of its defence forces had created new challenges for India.

India's large borders, hostile neighbours, diverse terrain and threat from all the three mediums, i.e. land, air and sea necessitated establishing of all the three elements of the defence

forces, i.e. Army, Navy, and Air Force (MOD, 2018). Indian Army (IA), the largest amongst the three Services had emerged as one of the largest armies of the world with an approximately 1.264 million active personnel by 2016 (TET, 2017). IA was divided into three components comprising Combat Arms, Supporting Arms and Services based on their roles and operational tasks. Its Combat Arms included Armoured Corps, Infantry and Artillery; the Supporting Arms included Army Aviation, Army Air Defence, the Corps of Engineers, the Corps of Signals and Mechanised Infantry while the Services included Army Medical Corps, the Ordnance Corps, the Corps of Electronics and Mechanical Engineering (EME), the Army Dental Corps and the Army Service Corps. IA was divided into seven commands comprising six operational commands and one training command. It is entrusted with the task of protecting the country against external aggression as well as for managing internal security threats. It undertakes HADR operations and provides aid to civil authorities during natural calamities and other emergency situations (IA, 2020).

Indian Army. Indian Army had a wide variety of offensive and defensive weapons for fighting in hills, deserts and plain areas of India. IA's armoured division equipped with indigenously designed Arjun and Russian T-72 and T-90 Tanks, and BMP-2 Infantry Combat Vehicles (ICVs) could undertake offensive mechanised warfare in plains and deserts while indigenous Nag and Helina, Israeli Spike; and French Milan anti-tank missiles and Pinaka Multi Barrel Rocket Launchers (MBRLs) provided robust defensive options against armoured forces of adversaries. Its fighting formations were provided protection against enemy air attacks by L-70, Zu23-2, ZSU 23-4 Schilka Air Defence Guns; Tanguska, Kvadrat and OSA-AK Surface to Air (SAM) missiles and Igla shoulder-fired SAMs. On the other hand, its artillery comprising light guns, medium Soviet 130 mm M-46 towed guns and Swedish Bofors FH-77 155 mm heavy guns provide IA considerable firepower against entrenched as well as an intruding adversary. The significance of artillery was highlighted during the Kargil war in 1999 when Bofors guns provided necessary range and lethality to destroy Pakistani soldiers deeply entrenched in the high hills of Himalayan ranges. However, weapons need to be upgraded to meet emerging challenges and IA was pursuing projects for procurement of advanced artillery guns as well as for

upgradation of existing artillery guns by 2016. It used Israeli Searcher-I and Searcher-II tactical and Heron Medium Altitude Long Endurance (MALE) UAVs for surveillance and reconnaissance of its borders. Indian Army also had a large fleet of helicopters for transport, logistics support, casualty evacuation, air observation and other tasks. Its helicopter fleet comprised of indigenously built Chetak, Chetak, Cheetal, Dhruv light transport helicopters (Advanced Light Helicopter [ALH]), Rudra armed helicopter (Armed version of ALH) and Light Combat Helicopter (LCH) (SPLF, 2013). In addition, Prithvi short-range and Agni long-range Surface-to-Surface missiles provide deep strike capability.

Indian Navy. The second arm of defence forces, i.e. Indian Navy (IN) commenced with a small fleet of 32 ageing coastal patrolling vessels and 11,000 personnel in 1947 and it had grown into 83,485 strong fighting force by 2016. It was equipped with an aircraft carrier, guided-missile destroyers, frigates, corvettes, small fighting ships, amphibious, survey, patrol, minesweeper, training and research ships. It also possessed aviation assets like fighters, maritime patrol, anti-submarine warfare, shore-based and ship-based aircraft and helicopters. IN was responsible for providing maritime security, coastal security, deterrence against war, undertaking offensive and defensive operations from the sea, HADR operations during natural and manmade disasters within the country as well as in other countries, strengthen international cooperation through joint exercises, port calls, etc. The area of responsibility of the IN was divided among three Naval Commands i.e. Western Naval Command (WNC) at Mumbai, Eastern Naval Command (ENC) at Visakhapatnam and Southern Naval Command at Cochin (TET 2017). Indian Navy played an important role in defence diplomacy and had trained more than 13,000 personnel from over 40 friendly foreign countries (IN, 2019).

Indian Air Force. The third arm of defence forces, i.e., Indian Air Force (IAF) was established as the Royal Indian Air Force during British era on 8 October 1932 with six officers, 19 Hawai Sepoys (Airmen) and four Westland Wapiti-II A biplane aircraft. India became an independent nation on 15 April 1947 and the word royal was removed with the adoption of its constitution and India becoming a republic on 26 January 1950. IAF had grown into a professional, technologically advanced and potent combat force with its manpower strength increasing to 1.55 lakh by 2016. It was organised into seven commands, out of which, five

operational Commands were formed on the basis of their geographic extent while the remaining two Commands comprising maintenance and training Commands catered to the maintenance and training needs of its high technology equipment and personnel respectively (IAF, 2019). It was equipped with approximately 650 advanced aircraft comprising Su-30, Mirage -2000, MiG-29, MiG-27, MiG-21 and Jaguar fighters; Flight Refueling Aircraft (FRA) and Airborne Early Warning and Control System (AWACS) force multipliers; Heron and Searcher Remotely Piloted Aircraft (RPA); C-17, C-130, IL-76, An-32, Avro, Embraer and Dornier-228 transport aircraft; and Mi-26, Mi-25/ Mi35, Mi-17 V5, Mi-17 IV, Mi-8, Advanced Light Helicopters, Chetak and Cheetah helicopters. The combat potential of these advanced aircraft and expertise gained in operating them had enabled IAF to transform from a tactical force into transoceanic force. Its fleet of advanced fighter, long-range heavy transport aircraft and helicopters had provided it with a quick response capability, which was crucial in protecting the security interests of the country (IAF, 2019).

Joint Training

Indian defence forces cautiously pursued integration among three Services as well as between Services and MoD to enhance their combat effectiveness. This was being carried out at two levels comprising establishing of tri-Services training, and tri-Services administrative and operational establishments. The first step in integration among the three Services commenced with the pre-commissioning training of the cadets of the three Services in 1949 at the National Defence Academy (NDA), Khadakvasla, Pune, India. This was followed by establishing of Tri-Services training institutions like Defence Services Staff College (DSSC), College of Defence Management (CDM), National Defence College (NDC) for training officers of three Services, civil services and friendly foreign countries. However, armed conflict between India and Pakistan in Kargil in 1999 highlighted lack of synergy in operations and procurement due to non-availability of tri-Services organisation. Also, lack of synergy among Services, MoD, Ministry of External Affairs (MEA) and R&D organisations resulted in gaps in capability development as well as in providing a holistic response in warlike situations. To overcome some of these challenges, Headquarters Integrated Defence Staff (HQ IDS) comprising representatives from three Services, MEA, DRDO, DoD and Def (Finance), was established on 23 November 2001.

The Chief of Integrated Defence Staff to the Chairman, Chiefs of Staff Committee (CISC), a three-star general from three Services (in rotation) enjoying the status of Vice Chief became its head. HQ IDS became an important player in bringing synergy among the defence Services. It was initially viewed as a weak organization as joint issues were decided on establishing consensus among the three Services. However, HQ IDS slowly and steadily created a space for itself as it increasingly dealt with issues like jointness in policy planning, force development, doctrines, joint training and intelligence (IDS, 2018). Indian government was deliberating on establishing Joint organisations like Special Operations, Cyber and Space Commands to strengthen HQ IDS and enhance synergy among three Services (Pubby M. 2018).

Indian Defence Forces in Wars

Indian Defence Forces possessing experience of participation in various wars were best placed to establish cooperation and sharing their experience for combat and counter-terrorism operations with newly formed defence forces of five CARs. The Defence Forces of independent India fought wars with its neighbours China and Pakistan, and had been undertaking borders security, counter-terrorism, counter-insurgency, UN peacekeeping and HADR operations since 1947. Newly formed IA playing an important role in controlling Hindu-Muslim riots and restoring peace successfully addressed its first internal security challenge. During the same time, Pakistan launching 'Operation Gulmarg' to annex Kashmir in which it's frontier tribesmen along with regular Pakistani troops launched an attack on Kashmir and inability of the small military of the princely state of Jammu and Kashmir to protect its territory was external security challenge that had emerged in the neighbourhood. Indian defence forces with the signing of instruments of accession by its Maharaja[21] Hari Singh on 26 October 1947 faced with an external exigency and it responded by swiftly inducting troops into the Kashmir valley in DC-10 Dakota transport aircraft of the IAF (IA, 2018). Simultaneously, IAF employing Spitfire and Tempest-II fighter aircraft of Advanced flying School, Ambala and No. 7 Squadron, respectively for strafing

[21] Maharaja in Hindi means a male prince or a ruler

missions against raiders succeeding in halting their advance towards the Srinagar valley (IAF, 2019). While battling along the northern state of J&K, Indian Army along with the police forces undertook operations against the Junagarh princely state to merge it with India (now in Gujarat). IA later undertook operations to merge the southern state of Hyderabad with India in September 1948. In J&K, India fought 14 months war along the Great Himalayas covering Jammu, Kashmir valley and Ladakh region till the UN mediated ceasefire came into effect on 01 January 1949. A decade later, IA undertook operations to integrate the southwestern coastal states of Goa, Daman and Diu in 1961 to bring an end to the 400 years of colonial rule by the Portuguese (IA, 2018).

Indian defence forces possess experience of undertaking peace-keeping and peace-enforcement operations for the United Nations. In one such operation, IAF provided offensive air support to UN operations in Congo (now Zaire) in 1961-62 when six Canberra bombers destroyed rebel air forces and provided long-range air support to UN troops (IAF, 2019). In another operation for the unification of India in 1961, Indian defence forces carried out successful operation to liberate Goa. In the India-China war of October 1962, Indian soldiers fought fierce battles against numerically superior Chinese military in the inhospitable Himalayan ranges in the North-Eastern India. IAF transport and helicopter fleet achieved some notable feats during this war, which included IAF Fairchild C-119G transport aircraft operating from airstrips located at an elevation of 17,000 feet (5180 m), An-12B transport aircraft airlifting AMX-13 light tanks to Chusul located at 15,000 (4570 m) elevation and helicopters providing logistics support to Indian Army under Chinese anti-aircraft fire were some of the unprecedented feats in the history of air warfare (IAF 2018). However, this war was a setback for India despite some brave and notable feats. The reluctance to use air force in offensive role and obsolescence of equipment held by the defence forces made India realise the need for inducting advanced weapons and review its operational philosophy for a full-fledged war. As a result, it initiated modernisation of the defence services and reviewed their recruitment and training patterns. As a consequence, Indian Government sanctioned expansion of the IAF to 45 Squadron force and increasing its manpower to 1,00,000.

India's neighbour Pakistan emboldened by its closeness to the US and equipping of its defence forces with advanced American weapons misjudged the capability and resolve of Indian Defence Forces and fought a war with India in 1965. The war was fought in three phases with Pakistan launching an attack on the Rann of Kutch, an area located in India's western state of Gujarat on 07 April 1965 in the first phase. Indian defence forces retaliated and this phase of the war ended with the intervention of British Prime Minister on 01 July 1965. Pakistan encouraged by lack of international reprisal and no major loss of territory in the first phase of the war, launched the second phase of the operation that was code-named "Op Gibraltar" and sent 30,000 raiders (Mujahids) to attack the Kashmir valley on 01 August 1965. Indian defence forces in retaliation launched a counteroffensive in Kashmir, which culminated on 21 September 1965 with the eviction of raiders. Pakistan had simultaneously launched the third phase of operation with an attack on Chhamb area in an operation named 'Op Grand Slam' on 01 September 1965. This operation was launched to capture strategically important Akhnur bridge, which is located near the Jammu region (western part of the state of J&K) to cut off India's road communication link with the Srinagar valley (IA, 2018).

Pakistani aggression met with stiff resistance from Indian Defence forces. IAF played an important role as its Vampire and Mystere aircraft of Nos. 45, 3 and 31 Squadrons struck ground targets, Hunter aircraft of No. 7, 20 and 27 Squadrons and Canberra launched interdiction and counter-air attack missions deep inside the Pakistan territory to cut off their supply lines while Gnat aircraft of Nos. 23 and 9 Squadrons achieved first of aerial victories against technologically superior PAF fighter F-86 Sabre Jet (of the US origin) in air-to-air combat, which later earned them the title of 'Sabre Slayers'. However, its newly inducted MiG-21 had not become operational and were not employed for operations during this war (IAF, 2019). To counter Pakistani invasion, India launched a three-front attack on the Lahore, Sialkot and Sind sectors of Pakistan in retaliation till the UN-sponsored ceasefire came into effect on 23 September 1965. Indian Defence Forces especially IAF gained first-hand experience of full-scale combat operations, which provided them with an assessment of their capabilities as well as helped them in identifying areas in which they needed to work on. In the post-1965 war period,

India reviewed and expedited acquisitions, re-orientated its training and operational philosophies and filled technology gaps, which were going to be crucial for its next war.

The conditions for the next war with Pakistan in 1971were created due to Pakistan government's military crackdown and repression of people of East Pakistan, leading to 10 million refugees entering India. Indian Defence Forces anticipating misadventure by Pakistan started preparing for the impending war. As a result, when Pakistan launched an attack on India on 3 December 1971, Indian defence forces were prepared and responded with speed and force (IA, 2018). The shooting down of three out four Pakistani Sabre fighter aircraft by IAF Gnat interceptors over East Pakistan and interception of PAF F-104 Starfighter by IAF MiG-21 fighter aircraft set the tone for ensuing air battle. IAF played a key role as its fighter aircraft undertook extensive interdiction, ground attack and air defence missions both in Eastern and Western Pakistan. Also, its helicopter fleet undertook one of the largest heliborne combat operations as it worked as air-bridge and helped Indian army formations in bypassing rivers, obstacles and enemy fortified positions in Eastern Pakistan, which played an important role in expediting the defeat of Pakistani forces and creating conditions for surrender by one of the largest number of defence forces personnel in the history of warfare. IAF flew 4000 sorties in the Western and 1978 sorties in the Eastern theatres (IAF, 2019). IN warships carried out attacks on Pakistani ships at Karachi harbour. They chocked Pakistani defence forces by creating a blockage for ships carrying arms and ammunition for them. Indian defence forces comprehensively defeated them resulting in the surrender of about 93000 Pakistani troops on 16 December 1971 (IA, 2018). In the following three decades, Indian defence forces systematically up-graded their inventory, enhanced its training standards and updated its doctrines to prepare for future contingencies while keeping abreast with modernisation by defence forces by its adversaries in the neighbourhood.

Kargil War. Kargil war provided an experience of fighting a war to evict intruding soldiers of nuclear-armed neighbour with restrictions of not crossing the border. Indian defence forces were called upon to fight a limited conventional war with Pakistan in Kargil district of the J&K state in 1999 when Pakistan launched a covert operation and captured unoccupied hilly

terrain near Kargil (Kakodkar, 2009). This was done with an aim to cut off India's National Highway No.1 that connected Srinagar and Leh cities of the J&K and was an important logistics supply route to the strategically important Siachen Glacier. The aim was to divert Indian army resources away from Srinagar valley and then launch a military operation to wrest Kashmir from India. The intrusion first detected in early May 1999 had surprised Indian Army, which launched a counter. However, it took some time to assess the scope and extent of intrusion by the adversary before go-ahead for the employment of air force was given on 25 May 1999. Pakistan leaders gave direct as well as veiled threats of escalation of conflict into a nuclear domain. However, India showed maturity and restraint during the India-Pakistan Kargil conflict of 1999 by overruling first use of nuclear weapons and the unilateral declaration of keeping its military operations against Pakistani intruders restricted to within its borders. This made the task of IA and IAF challenging; however, it overruled the chances of miscalculations and expanding the scope of war into the nuclear domain. This stance deprived Pakistan an opportunity to use it as an excuse to seek international intervention (IAF, 2019).

Indian Armed Forces showed extraordinary bravery to evict Pakistani intruders from their well-connected and well-stocked tiny posts located on the treacherous Himalayan Mountains having an elevation between 14000 to 18000 feet. This required bravery, good planning, trained and motivated soldiers and precision artillery fire supported by accurate airstrikes. IA and IAF had all of this, which enabled them to fight a gruelling battle in unfavourable conditions. The 155 mm Bofors guns proved their mettle by carrying out precision artillery strikes on Pakistani positions. Indian army units led by motivated young officers undertook some of the most daring attacks on near-vertical hills.

IA sought employment of attack helicopters; however, the inability of Mi-25/ Mi-35 assault helicopters to operate at high altitude necessitated the employment of Mi-17 transport helicopters fitted with air to ground rockets in the ground attack role. IAF Canberra bomber survived a shoulder-fired missile attack while one each Mig-21, Mig-27 and Mi-17 armed helicopter were lost to the Surface to Air Missiles (SAMs) during the early stage of the war. Therefore, IAF re-evaluated the threat posed by shoulder-fired SAMs, withdrew its helicopters

from armed strike role and resorted to high altitude precision attacks from fighter aircraft while remaining out of kill envelop of the Stinger SAMs. This became possible due to innovative employment of handheld GPS for precision bombing and modification of Mirage-2000 aircraft with Israeli Litening Electro-Optic targeting pods and Paveway II Laser Guided Bombs, which allowed IAF to attack positions of Pakistani intruders accurately. The employment of IAF played an important role in destroying some of the tiniest but critical positions of Pakistan intruders, which were located on high mountains and needed to be destroyed to defeat and demoralise intruders. IA and IAF had shown mettle and professional competence in fighting high altitude mountain war, which added a new chapter in the history of warfare (Lambeth, 2012). IN during the war did not engage Pakistani Navy directly but contributed in the war effort by deploying its forces in the Arabian Sea to counter any threat from the Pakistani Navy. Indian military evicted Pakistani intruders by 26 July 1999 and reoccupied its territory despite being in a disadvantageous position in high altitude Himalayan Mountains.

Counter-Terrorism and Counter-Insurgency Operations

Indian defence forces were involved in counter-terrorism and counter-insurgency operations for a long time. They were called upon to support local administration in countering insurgency in some parts of North Eastern (NE) states, Left Wing Extremism (LWE) in Central and Southern states and terrorism in the state of J&K. The social and economic inequality, exploitation of tribals played an important role in the rise and spread of LWE (also referred to as Maoist movement). Political alienation, isolation and immigration of foreign nationals threatening the ethnic identity of locals led to the spread of insurgency in NE India. The persistent external support to terrorism complicated security scenario in India. Indian police forces tasked for maintaining law and order situation in the country were ill-equipped to counter well-armed and well-trained insurgents, terrorists and LWE. Indian defence forces possessing were, therefore, called upon to undertake counter-terrorism, counter-insurgency and anti-Naxalism operations.

Indian defence forces established collaborative structures with police and local administration to face complex security challenges posed by insurgent groups including National

Socialist Council of Nagaland (Khaplang) [NSCN (K)] and National Socialist Council of Nagalim (Kaplang-Kitovi) [NSCN (K/K)] operating in Nagaland, National Socialist Council of Nagaland (Isak-Muivah), [NSCN (IM)] and NSCN (K) operating in Arunachal Pradesh, and Kuki and Zomi underground groups operating in Manipur. The formation of a unified command structure comprising Army, Assam Rifles and police was a unique endeavour that helped them in stabilising the security situation in the North-East except Manipur (IA, 2018). Another significant aspect of their approach was the use of a combination of hard and soft power against insurgent groups and countering motivated propaganda that was aimed at creating disturbances among the population having diverse religions, and facing social and economic challenges (Rana Banerji, 2011). Indian defence forces' experience of dealing with insurgents operating along hilly and porous borders of Myanmar in the east, preventing infiltration of terrorists, smuggling of drugs and counterfeit currency from Pakistan in the West and Nepal in the North and surveillance of water channel between India and Sri Lanka in the South, the Arabian Sea in the West and Bay of Bengal in the East could prove valuable for the newly formed CARs.

They operated in collaboration with state police and other paramilitary forces to leverage their knowledge of local terrain and people as well as to ensure that undue allegations of human rights violations by local population were avoided. However, IA like most militaries was trained for fighting a full-scale war and not equipped and trained for meeting internal security challenges. On realising the special challenges posed by externally trained and abetted militants, IA raised Rashtriya Rifles (RR), a specialist elite force in 1990 to combat militancy in J&K. The RR Battalions had unique characteristics as they had drawn personnel from all the Arms and Services, who were recruited through the stringent selection process, were imparted special training and provided specialised weapons to deal with terrorism. On the other hand, IA focused on joint operations and improving intelligence gathering mechanism to counter the threat posed by insurgents and LWE, who stayed in remote areas, jungles and merged with the local population. India primarily employed Airpower for combat support operations comprising casualty evacuation and surveillance operations. India did not employ air power in the offensive role against LWE, insurgents and terrorists to prevent fratricide to own population (IA, 2018).

Indian Defence Forces operating in hostile environment needed protection against undue exploitation as they could easily be embroiled in undue litigation on false complaints. Their vulnerability was higher in the state of J&K as the Code of the Criminal Procedure (CrPC) that disallowed the arrest of public servants without government's approval was not applicable in the state of J&K. Similarly, defence forces and police forces operating against well-trained and well-equipped insurgents in the NE States of India also needed legal provisions (Chadha, 2012).

India enacted Armed Forces Special Powers Act (AFSPA) for North Eastern States and J&K in 1958 and 1990 respectively. In the Act, power to declare an area disturbed rested with the Central and State governments and it gave defence forces powers to undertake operations pro-actively, carry out a search, destroy arms and ammunitions, fortifications and hand over terrorists/ insurgents to local police at the earliest. The act protected them for acting in good faith in their official capacity. Indian media and human rights organisations; however, continued to report human rights violations to keep a check on excesses by Indian defence forces. Pakistani leaders and anti-national elements in India sometimes exploited information published in such reports and launched propaganda to defame defence forces. Anti-defence forces narrative was created to depict Indian defence forces and police forces in bad light. Indian courts on the other hand laid down ground rules and Do's and Don'ts for Defence and police forces operating in such areas to prevent atrocities on common public (Chadha, 2012).

Investigation of complaints of human rights violation by Indian defence forces revealed that over 96 % of the cases were false (Chadha, 2012). However, wherever and whenever, such allegations were found genuine, Indian Defence Forces punished defaulters. IA also started engaging with national and local media, published details of complaints received, investigations carried out, action taken, compensation paid, etc. to keep the public informed. An endeavour was made to bring transparency and expeditiously address complaints related to Human Rights violation by defence personnel; however, winning the hearts and minds of local population amid involvement of separatists and support by Pakistan continued to be a challenge. As a whole, India was able to keep insurgency and terrorism under control despite external support. Indian Defence Forces had gained considerable experience and expertise in counter-terrorism and counter-insurgency operations, which could have relevance for the CARs.

HADR Operations and Exercises with Foreign Defence Forces

The three arms of the Indian defence forces i.e. IA, IN and IAF regularly carried out combat and non-combat exercises with friendly foreign countries to learn best practices in warfighting as well as counter-terrorism operations. Also, Indian defence forces were often called upon to undertake HADR operations during natural calamities and unforeseen contingencies within India as well as in other countries. As a result, HADR became an important area for cooperation between India and other nations as their defence forces learned to operate together and complement each other during natural calamities. Indian defence forces gained experience of operating with defence forces of different countries of the world. These exercises enabled Indian defence forces to achieve interoperability with other countries as well as served as confidence-building measures with them.

Defence Industries of India

The defence industry being technology-driven and capital intensive possesses an immense potential to contribute to the industrial and economic growth of the country. The annual defence budget indicates the size of the economy, defence forces and defence procurement while expenditure on defence R&D and defence exports give an understanding of its focus and capability of its domestic defence industry. After independence, India built a large defence industrial eco-system comprising research and development entities, Defence Public Sector Units (DPSUs), Ordnance Factories (OFs) and allowed participation of private companies to become self-reliant in defence manufacturing. However, these entities were unable to meet the requirement of Indian defence forces and a large portion of the defence budget was spent on import of defence equipment.

The annual defence budget of India was Rs. 2,58,589 crores (Approx. USD 37.26 billion[22]) for the year 2016-17, which amounted to 1.4 % of GDP. The defence budget of India, was about one third as compared to defence budget of its northern neighbour China. About 50 % of India's total defence budget was allocated to IA, 22 % to IAF, 14 % to IN, 6 % to DRDO and

[22] According to Central Board of Excise and Customs, India, 1US$ = Rs 69.40 for imports as on 01 December 2016.

1 % to OFs. Out of total budget, Rs 86,188 crores (Approx. USD12.4 billion) were earmarked for capital procurement, i.e. for buying new equipment. However, allotment of funds for procurement of defence equipment was inadequate to meet the requirements of its defence forces and India always faced a dilemma between developing them indigenously and buying from foreign OEMs (Behal, 2016).

India after becoming an independent nation in 1947 lacked structures for undertaking R&D in strategic sectors including defence. Towards the end of 1950s, Indian government felt the need for establishing public sector entities for undertaking, research, design, development and manufacturing of strategic sectors including space, aeronautics and defence. In this process, several new entities were set up as well as existing private sector entities were acquired to establish a robust aeronautics, space and defence industrial eco-system. It established DRDO in 1958, which became the largest design and development agency of the country with a network of over 50 laboratories by 2016. Its laboratories were divided into ten technological clusters comprising aeronautics, armament, combat vehicles and engineering, electronics and computer sciences, human resource development, life sciences, materials, medical, missiles, and naval systems (Table 2.1). The expenditure on defence R&D hovered around 6 % of the total defence budget, which was less than the desired level of about 10 %. Details of Expenditure of DRDO, Total Defence Expenditure, and Expenditure of DRDO as a percentage of Total Defence Expenditure from 2011-12 onwards are given below: -

Year	Expenditure of DRDO (Rs. in crore)	Total Defence Expenditure (Rs. in crore)	Expenditure of DRDO as percentage of Total Defence Expenditure (Rs. in crore)
2011-12	9,893.84	1,70,913.28	5.79
2012-13	9,794.80	1,81,775.78	5.39
2013-14	10,868.89	2,03,499.35	5.34
2014-15	13,257.98	2,18,694.18	6.06
2015-16	13,289.28	2,25,894.85	5.88
Fig. 2.2. 49 Standing Committee on Defence, Sixteenth Lok Sabha Report (2018-19), Government of India			

Its main task was to design and develop advanced systems that led to production of state of the art defence equipment. DRDO having manpower of 5000 scientists and 25,000 technical and

supporting personnel produced a variety of combat aircraft, radars, electronic warfare system, naval ships and land systems. Out of the allotted budget, very large amount was needed for the maintenance of large manpower and infrastructure. It faced challenges in meeting the requirement of defence forces as development timelines of number of defence products had exceeded or products could not be inducted due to technological, funding and other challenges. In order to cover technology gaps, it made endeavours to harness talent available outside DRDO and established collaborations with academic institutions, DPSUs and private industry to design and develop advanced military equipment (DRDO, 2019).

Defence Public Sector Undertakings (DPSUs)

There are nine DPSUs under the Department of Defence Production (DDP), Ministry of Defence, India. Amongst the nine DPSUs, HAL was the largest public sector company of the MoD, which was established at Bangalore by an entrepreneur and a visionary, Walchand Hirachand with an aim to manufacture aircraft in India in 1940. Thereafter, British government became a stakeholder in the company in 1942. In 1951, it was placed under the administrative control of MoD, Government of India. It designed, developed and manufactured several military aircraft, however, it did not focus on the development of civil aircraft. It produced several military fighter aircraft and helicopters acquired under license from foreign OEMs. HAL produced only two military transport aircraft, i.e. Avro medium transport and Dornier-228 light transport aircraft under license. It modified military version of Dornier-228 and obtained certification for civil aviation operations. By 2015-16, it had grown into the biggest DPSU of India comprising 20 production and 11 R&D Centres with a turnover of over 16,000 crores and export of over 400 crores. It manufactured 15 types of aircraft through in-house research, design and development effort, while it produced 20 types of military aircraft under license from foreign OEMs. Its most advanced project was related to the development of Light Combat Aircraft (LCA) in the last three decades, which faced delays due to development challenges, technology

denials and changes in QRs by users. However, after passing through long and tough development process, it was emerging to be a promising fighter in its class (HAL, 2016).

HAL made considerable progress in the development of rotary aviation platforms as it simultaneously pursued the development of three types of helicopters, i.e. Advanced Light Helicopter (ALH), Light Combat Helicopter (LCH) and Light Utility Helicopter (LUH). Its first helicopter, ALH gradually matured as a military flying machine despite facing initial teething problems. ALH became the backbone of defence forces and paramilitary forces as over 250 helicopters were sold to them. However, HAL struggled to sell military version of ALH to international customers due to initial technological challenges, adverse media coverage and lack of experience in international business. The civil version of the ALH Mark-I, on the other hand, struggled to establish a foothold in the market due to limitations associated with its military-specific safety features, which resulted in greater maintenance support and higher operating costs. To overcome limitations of civil version, HAL had initiated design changes to develop ALH Mark-III to bring down the cost of operation and maintenance. Further improvements in the civil versions were being examined to reduce its cost of operations and increase its life. The experience gained in the development of ALH enabled HAL to develop its armed version ALH Mark-IV, its combat version LCH and smaller single-engine LUH in much less time period than the time spent on developing first prototype of ALH Mk-1 (HAL, 2016).

The communication is the bedrock of coordination within the defence forces as well as with other Services during peace as well as during wars. After independence, Indian defence forces needed communication equipment; however, there was no facility to manufacture, repair and overhaul them during their lifetime. To meet the needs of communication equipment of Indian defence forces, the second DPSU, i.e. Bharat Electronic Limited (BEL) was established in 1954 with the help of CSM, France (now Thales) to manufacture communication equipment. By 2016, BEL had grown in size and its nine production units with a turn over of Rs 7,510 crores were developing a wide variety of military-civil electronic equipment, which included radars, Naval Systems, weapon systems, communication systems, Electronic Warfare Systems (EWS), Electro-Optic (EO), Tank Electronics, Homeland Security, Telecom and Broadcast systems,

Electronic Voting Machines /Tablet PCs, Solar Powered traffic signal systems and Access Control Systems. The high-quality communication equipment with civil-military applications had the potential for export to other countries. BEL exported products worth USD80.7 million in 2015-16 and there was a scope for enhancing export to friendly foreign countries (BEL, 2019).

India established Bharat Earth Movers Limited (BEML) in1964 with an initial mandate for manufacturing rail coaches and mining equipment. All three Defence forces needed heavy support equipment and vehicles to support operations. Therefore, BEML diversified into manufacturing of a variety of tractors, wheel dozers, bridge systems, medium and heavy vehicles, and crash fire tenders to meet requirements of defence Services and aerospace sector. It exported its products to 68 countries (BEML, 2019).

The DRDO and DPSUs set up during 1950 and 1960s needed special materials for manufacturing defence, space, and aeronautics products. As a result, the fifth DPSU, Mishra Dhatu Nigam Limited (MIDHANI) was set up in 1973 to indigenously manufacture strategic materials like titanium alloys, special steel, electronic and electric alloys, etc. to achieve self-reliance in defence, aerospace, atomic energy, space, steel and hydro-electric sectors (MIDHANI, 2019).

India resorted to collaborations to catch up with technological developments in weapons technology and in one such endeavour it established Bharat Dynamics Limited (BDL) in 1970 to produce a state of the art guided weapon systems, which increased accuracy and effectiveness of weapons. BDL started with the license production of SS11B1 first-generation Anti Tank Guided Missile (ATGM) of French origin, which was followed up with the production of Milan-2T man-portable second-generation ATGM (French) and Konkurs-M mechanised second-generation ATGMs (Russian). By 2016, BDL was manufacturing advanced guided missiles and other systems that had been designed and developed by DRDO under the Integrated Guided Missile Development Program (IGMDP) of India, some of which had the potential for export to other countries. Its products included Akash Surface to Air Missiles (SAMs), Nag third-generation ATGM, Varunastra Torpedo, Counter Measure Dispensation System (CMDS), air and

submarine-launched decoys. It was about to start manufacturing Very Short Range Air Defence Missile (VSHIRAD), which was an advanced missile with potential for export (BDL, 2019).

India surrounded by Bay of Bengal in the East, the Arabian Sea in the West and Indian Ocean in the south needed large number of ships to guard its maritime borders. After independence, naval vessels inherited by Indian defence forces were old and needed to be replaced. Indian government did not have public sector shipbuilding entities to meet the requirements of defence forces. Therefore, it took over private shipbuilding companies to manufacture ships for Indian Navy. The sixth DPSU, Mazagaon Dock Shipbuilders Limited (MDL), a leading private shipbuilding company was made a listed company in Mumbai in 1934. It was taken over by Indian government in 1960 and had built 795 ships including 25 warships and 3 submarines for civil, military and para-military forces since then. Its products included cargo ships, passenger ships, supply vessels, multipurpose support ships, tugs, dredgers, fishing trawlers, water tankers and patrol boats for Indian and foreign customers (MDL, 2019).

Garden Reach Shipbuilders and Engineers (GRSE), a private shipbuilding company was registered under the Companies Act in 1934 and acquired by the Government of India on May 19, 1960. Since then, it had built warships, offshore patrol ships and hovercrafts for the Indian Navy and Indian Coast Guard. GRSE provided end-to-end solutions having three verticals of Shipbuilding, engineering and engine production. It possessed modern manufacturing facilities (GRSE, 2019).

India's visionary businessman Seth Walchand Hirachand's Scindia Steam Navigation Co. Ltd had started manufacturing ships at Vishakhapatnam in India in 1941. It was renamed as Hindustan Shipyard Limited (HSL) in 1952 and fully taken over by Indian Government, Ministry of Shipping in 1961. It was brought under the administrative control of Ministry of Defence in 2010. It built a variety of civil and military ships, submarines, and undertook their refit and repair (HSL, 2019). India needed more shipbuilding entities to meet the requirement of civil-military users.

After the liberation of Goa in 1961, a small shipyard named "Estaleiros Navais de Goa" was taken over the Government of India and renamed as the Goa Shipyard Limited (GSL). GSL

was specialised in building patrol, survey, passenger, fishing, ferry, missile, landing and training vessels from 29 to 110 m and 6000 T for military, Ministry of Home Affairs (MHA), Coastal Police, ONGC of India and other civil users. In 2016, India had planned to construct over 40 ships in the next decade (GSL, 2019).

The details of India's DPSUs and their products are summarised below.

S No	DPSU	Year Established/ Taken Over by Govt	Products/ Remarks
1	Hindustan Aeronautics Limited (HAL)	1940	LCA, ALH, LUH, LCA, HTT-40, IJT, Dornier-228
2	Bharat Electronics Limited (BEL)	1954	L-band (RAWL 02 Mk-II and III) radar, 3D surveillance radar (Revathi), Low Flying Detection Radar (Indra-II), 3D tactical control radar, low-level lightweight radar (Bharani), 3D surveillance radar (Rohini) surface surveillance radar, 3D S-band naval missile defence radar, fire control systems, weapon locating radars, secondary surveillance radars, IFF Mk-XII, weapon systems, sonars, VLF/HF/VHF/UHF/C/KU band communication systems and software-defined radios, Encryption products, EWS, EO and Tank electronics
3	Bharat Earth Movers Limited (BEML)	1964	Medium and heavy vehicles, railway and metro coaches, crash fire tenders, bridging equipment
4	Bharat Dynamics Limited (BDL)	1970	Manufacture guided weapons including Akash Surface to Air Missile, Nag third-generation fire and forget Anti-Tank Guided Missile, Varunastra Heavy Weight Torpedo, Submarine Launched Decoys, Chaffs and Decoys for aircraft
5	Garden Reach Shipbuilders and Engineers Limited (GRSE)	1960	Ships ranging from small to large including frigates, anti-submarine warfare corvettes, missile corvettes, landing ship tanks, landing craft utilities, survey vessels, fleet replenishment tankers, fast patrol vessels, offshore patrol vessels, inshore patrol vessels, hover crafts and fast interceptor boats
6	Goa Shipyard Limited	1961	Placed under MoD, GoI, Manufactured Mines

	(GSL)		Counter Measures Vessels (MCMV), Offshore Patrol Vessels (OPVs), Boats
7	Hindustan Shipyard Limited (HSL)	1961	Placed under Ministry of Shipping, GoI in 1961 and brought under MoD in 2010
8	Mishra Dhatu Nigam Limited (MIDHANI)	1973	Developing strategic materials to support aeronautic, space, atomic energy and defence
9	Mazagon Dock Shipbuilders Limited (MDL)	1960	Ships, submarines, etc

Indian Ordnance Factories (IOFs)

Indian defence forces had a large inventory of weapons for which variety of ammunition in large quantity was needed. India inherited 18 Ordnance factories at the time of independence, which over a period time produced ammunition, weapons, explosives, propellants, military vehicles, armoured vehicles, optical devices, parachutes, other stores and support equipment. However, with the induction of new weapons, these factories were not able to meet the requirements of variety of ammunition needed by the Indian defence forces. Therefore, the scope of these factories was expanded as well as new ones were established to meet increased requirement of ammunition. As a result, the number of factories had increased to 41 by 2016. (TIOF, 2019)

Indian DPSUs and OFs placed less emphasis on research and development as there were not many innovations or new ammunitions developed by them. Also, there was hardly any export of ordnance by OFBs in the past. They received assured but limited orders from defence forces, which made their products economically unviable and their products did not become globally competitive. However, Indian governments reviewed its approach to defence manufacturing in the last decade or so. It simplified policies that allowed DPSUs to export and allowed participation of the private sector for the manufacturing of defence products to make them competitive and improve the quality of their products.

Private Sector

The private sector played a small but important role in moving towards self-reliance in defence manufacturing since independence. Several private sector entities contributed in defence manufacturing; however, their involvement was normally limited to supply of sub-systems and components to DPSUs. They rarely produced complete high technology and high-value defence equipment. In the last decade of the study, Indian government took policy initiatives like the introduction of 'offsets' clause in defence procurements from foreign OEMs and Make in India to promote defence manufacturing in India. The policy changes aimed at enhancing the participation of private sector motivated several private sector entities to enter into the field of defence manufacturing.

TATA Group, one of the leading private business houses in India, was involved in defence equipment manufacturing. Its vehicle manufacturing company, TATA motors produced a wide variety of defence vehicles comprising heavy military vehicles, combat and combat support vehicles, trucks, buses, ambulances, troop carriers, prison vans, water tankers (TATA Motors, 2019). A subsidiary of TATA Group, i.e. TATA Advanced Systems developed strategic and defence systems comprising Missile, Radar, Command and Control, Aerospace and Aero-structures, Unmanned Aerial Vehicles, Optronic, Homeland Security and maritime systems. Several global defence and aviation leaders like Boeing, Pilatus Aircraft Ltd, Lockheed Martin, General Electrics, Sikorsky collaborated with TATAs to produce defence and aerospace products in India to meet offset requirements (TATA AS, 2019).

The second major private sector company involved in defence manufacturing was Kalyani group, which supplied several sub-systems and components like ammunition and shells, aluminium road wheels, track shoe assembly for battle tanks, rocket tubes, tank crankshafts, axle beams, transmission parts in the past. With the formulation of manufacturer friendly policies by Indian government, they started manufacturing complete systems with an emphasis on manufacturing artillery systems, armoured fighting vehicles, precision ammunition, military vehicles, defence electronics and homeland security products. Its subsidiary Kalyani Strategic Systems manufactured defence equipment for domestic as well as foreign defence forces. Kalyani Group also collaborated with BAE Systems for AD Guns, IAI for maintenance of advanced air defence system and THALES for next-generation weapon systems (Kalyani, 2019).

The third company, which had significant presence in defence equipment manufacturing was Larsen and Toubro (L&T). L&T was a technology and construction company, which manufactured air defence systems, multi-barrel rocket launchers, missile launchers, C4ISR systems, upgrades of naval launch and fire control systems, avionics, and bridging and communication systems. It also collaborated with DRDO and DPSUs to develop, manufacture and export defence products (L&T, 2019). The fourth major Indian company that had been manufacturing defence products was Mahendra. It was a leading auto manufacturer, which diversified its business into manufacturing of defence products for three Services, which included armoured vehicles, underwater warfare systems, radars and communication systems. Its sister company Mahindra aerospace had manufactured small utility aircraft Airvan-8 and Airvan-10 8/10 seat turboprop aircraft since 2010 (Mahindra, 2019).

Another private sector company that entered defence manufacturing sector was the Reliance Industries that had a presence in multiple sectors including oil refineries. Reliance Group established Reliance Defence for manufacturing weapons and sensors, autonomous underwater vehicles, other underwater and land systems (Reliance 2019). Similarly, Adani group known for building ports invested heavily in defence and aerospace manufacturing (Adani, 2019).

Four major private sector shipyards, i.e. Cochin Shipyard Ltd, Alcock Ashdown Shipyard, ABG Shipyard and Papavav Shipyard complemented Public Sector shipyards in manufacturing naval ships. India despite having a long history of shipbuilding was dependent on imports for many technologies. The level of indigenous contents in ship's structure, propulsion system and weapons (and sensor) with indigenous content was approximately 90 %, 60 % and 30 % respectively. India's naval ship manufacturing industries depended on foreign suppliers for certain critical systems. India industry faced technological obsolescence and traditional shipbuilding process involving the construction of hull from the kneel upwards resulted in time delays and cost overruns. Therefore, a need was felt for focusing on research and innovation, adoption of modular construction technology, miniaturisation of nuclear reactors for nuclear-powered submarines and indigenous development of steam engines, weapons and sensors to fill technology gaps in shipbuilding, submarine building and associated technologies (Khurana, 2014). The inefficiencies of public sector entities and lack of level playing field for private shipyards added to challenges (Behara 2012).

Indian government took initiatives to overcome the above limitations and as a result, public and private shipyards contributed to enhancing shipbuilding capability. They increasingly resorted to modular construction to reduce construction time, life cycle costs and facilitate easy upgrades in future. Indian shipbuilding companies despite limitations of indigenous eco-system gained reasonable experience and expertise in the construction of ships and integration of systems and sub-systems; however, they continued to lag in critical technologies (Kulshrestha, 2014).

Impact of Disintegration of Soviet Union

After independence, India despite establishing a robust domestic defence industry was largely dependent on imports with USSR becoming the lead supplier. However, after the disintegration of Union of Soviet Socialist Republic (USSR) in 1991, its import from Russia started declining due to disruption in the Russian defence ecosystem and their supply chains. As a result, India started looking towards the USA and other Westerns countries for acquiring defence equipment, which is evident from the induction of C-130 and C-17 transport aircraft, Chinook helicopter and other weapons systems bought from Western countries has increased substantially after 1991. At the same time, it made endeavours to strengthen its domestic defence manufacturing industry and the number of equipment supplied by domestic defence industries has also increased.

India conducted nuclear tests in 1998 and simultaneously pursued missile development program. The dual nature of its missile program comprising conventional and nuclear-armed ones provided ambiguity and deterrence against its nuclear-armed adversaries and protection against nuclear blackmail by them. By 2016, India was amongst the nine nuclear-armed countries of the world and possessed 120-130 nuclear warheads having a triad of air, land and sea-launched capability, which was essential for providing deterrence against its two nuclear-armed neighbours, i.e. China and Pakistan. (SIPRI Yearbook, 2017).

After India's nuclear tests in 1998, several countries imposed sanctions and banned the export of advanced defence equipment and associated technologies to India. These sanctions adversely impacted some of its indigenous defence design and development projects while at the same time motivated India to strengthen domestic defence manufacturing industry. These sanctions were lifted with the signing of India-US nuclear deal in July 2005, which ended technology apartheid and removed sanctions on defence technologies (The US-India Nuclear Deal, 2005).

India introduced a defence-offset clause in the Defence Procurement Policy (DPP)-2005 in order to leverage procurement of large number of defence equipment for strengthening its defence industrial ecosystem. It made it mandatory for foreign OEMs to invest 30 % of the contract value in India by procuring locally manufactured products and services or establish

partnerships with Indian companies. This policy was revised in 2011; however, most foreign OEMs continued to spend offset amounts in low technology and low-value products like hiring of space for offices, vehicles, personnel and provision of maintenance services with little technological benefits for Indian partners. The near absence of technology transfer in defence procurement deals, low investment in R&D and other challenges kept Indian domestic defence industry in-competitive and India continued to face challenges in converting its indigenous designs into operational products.

After swearing-in of the new government in India in 2014, a renewed effort was made to give a push to domestic industry and promote indigenous manufacturing of defence equipment (SIPRI Arms Transfers, 2018). India also launched 'Make in India' initiative in 2015 to attract foreign OEMs in setting up manufacturing facilities in India to meet requirements of its defence forces as well as for export to other countries. To speed up defence manufacturing in India, India opened its defence manufacturing sector to foreign investors by allowing 49 % Foreign Direct Investment (FDI) through the direct route and 100 % with government approval in 2016 (FDI Policy, 2016). In 2016, DPP was again revised to leverage large defence procurements (worth USD 250 billion) in the coming decade to fill gaps in the above policy and boost local manufacturing and strengthen technology base in the country.

The US had designated India as a major defence partner in 2016 and India was optimistic that this move would facilitate formation of joint ventures with leading defence companies of the US and other Western defence manufacturers. It was expecting to attract them for manufacturing of defence equipment in India. However, these measures did not bring desired level of foreign investment, technology, filled technology gaps or helped in boosting defence manufacturing (CII, 2018). These developments reinforced the view that convincing foreign OEMs to set up manufacturing units in India for its military as well as for international customers needed more than the policy pronouncements, which included skilled diplomatic manoeuvring and active support of the top leadership.

Defence Export by India

The policy initiatives taken by India had a positive impact on the performance of DPSUs and private companies despite their weaknesses and implementation challenges. Many Indian private sector companies had established defence companies and were manufacturing a variety of defnce products. They had started supplying their products to Indian defence forces and were exploring avenues for exporting to other countries. India's export was increasing gradually Amongst DPSUs, four DPSUs, i.e. Hindustan Aeronautics Limited (HAL), Ordnance Factories (OFs), Bharat Electronics Limited (BEL) and Bharat Dynamics Limited were placed at $37^{th,}$ $38^{th,}$ 74^{th} and 106 positions respectively, among top global defence equipment exporting industries of the world (SIPRI Arms Industry, 2018).

Indian DPSUs were established with an aim to indigenously design and manufacture defence equipment in India. They also undertook license production and MRO of imported products. Indian defence industry met the requirements of its defence forces; however, its export was limited. The details of defence equipment exports by India to friendly countries between 1992 and 2016 are given below (SIPRI, 2019).

Exported To	Equipment	Year of Order/ Delivery	Qty	Remarks
Maldives	BMP-2 IFV	1991/1992	2	Possibly second hand
	Pig APC/APV	1991/1992	2	Second-hand; reported as Armoured vehicles of UK origin
Afghanistan	SA-315 B Lama Light Helicopter	2012/2015	3	Cheetal Version
	Mi-24D/ Mi-25 Assault Helicopter	2015/2015-2016	4	Second-hand; aid; Mi-25 version
Bhutan	Aditya APC	2003/2004	1	
Ecuador	Dhruv Helicopter	2008/2009	6	INR 2 billion (USD 50 million) deal (incl 1 more for VIP transport) for SAR[23]
Guinea-Bissau	SDB Mk-3 Patrol craft	1992/1993	1	Second-hand
Maldives	SDB Mk-5 Patrol Craft	2006/2006	1	Second-hand (but only 4 years old); Maldives designation Hurawee
	Dhruv Helicopter	2009/2010	1	Aid
		2012/2013	1	
Mauritius	SDB Mk-2 Patrol craft	1993/1993	1	Second-hand, USD 3.5 million aid deal
	Dornier-228 Maritime Patrol aircraft	2004/2004	1	For coast guard
		2014/2016	1	
	Barracuda OPV	2011/2014	1	USD 60 million deal for Coast guard
	Naidu Patrol Craft	2014/2016-2017	2	USD
Myanmar	Mi-8T Transport Helicopter	1999/2000	2	Second-hand; lease
	BN-2 Light Transport ac	2005/2006	2	Second-hand; aid
	Aditya APC	2006/2006	10	Second-hand; aid
	105 mm Light Towed Gun	2006/2006	10	Second-hand; aid
	LW-04 Air Search Radar	2006/2013	1	For 1 Aung Zeya Frigate from China
		2011/2016	1	RAWL-02 version; for Tabinshweti
		2013/2015-2016	3	RAWL-02 Mk-2 version; for 2 Kyan Sittha frigates and 1 Tabinshwehti corvette produced in Myanmar
	T-55 Tank	2006/2006	10	Second-hand; aid
	BN-2 Maritime Patrol Aircraft	2007/2007-2008	5	Second-hand; aid
	HMS-X ASW Sonar	2013/2015	3	For 1 Aung Zeya frigate from China and 2 Kyan Sit Thar frigate produced in Myanmar
Namibia	SA-315 B Lama Light Helicopter (Cheetah)	1994/1994	2	Part of USD 5.5 million deal
		2009/2011	1	
	SA-316 B Alouette-3 Light Helicopter (Chetak)	1994/ 1995	2	Part of USD 5.5 million deal;
		2009/2014	2	
Nepal	M-43 Mortar	1992/1992	52	

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	SA-315 B Lama Light Helicopter (Cheetah)	2001/2001	2	
		2001/2004	10	Lancer armed version
	SA-316 B Alouette-3 Light Helicopter (Chetak)	2001/2001	2	
	Casspir APC	2002/2002	3	
	Aditya APC	2003/2004	100	Aid/ Nepal pays 33% of cost
	Dhruv Helicopter	2003/2004	2	USD 12-18 million deal (incl 70% as aid); armed version
Seychelles	SDB Mk-5 Patrol craft	2004/2005	1	Seychelles designation Topaz
	Do-228 Maritime Patrol aircraft	2012/2013	1	Aid
	SDB Mk-5 Patrol Craft	2013/2014	1	Second-hand; aid
Sri-Lanka	Tata Diesel engine	1985/1987-2006	150	For Unicorn and Unibuffel APC produced in Sri-Lanka
	Sukanya Offshore Patrol Vehicle (OPV)	2000/2000	1	Sri-Lankan designation Sayura
	Indra Air Search Radar	2005/2006	2	Aid
		2007/2007	2	Aid
	Vikram OPV	2007/2007	1	Second-hand; aid; Sri-Lankan designation Sagara
		2008/ 2008	1	Second-hand
Suriname	SA-316 B Alouette-3 Light Helicopter (Chetak)	2009/2015	3	USD 15-30 million deal (financed by Indian credit)
Viet Nam	L&T 35 m Patrol Craft	2016	4	USD 100 million deal; for border guard
SIPRI Transfer of Major Weapons: Deals with Deliveries or Orders Made for 1992 to 2016, Accessed 25 June 2019				

Indian public sector companies had gained considerable experience in license manufacturing of defence equipment. They designed and developed defence equipment indigenously and supplied them to a few countries; however, some of the equipment was supplied under the military-aid program. Most of the deals with foreign countries involved small number of equipment and these deals were not big in economic terms yet they indicated India's aspiration to become an exporter to defence equipment. Overall, India was a reluctant exporter of defence equipment.

Indian defence industry was predominantly inwards looking for the major part of the study as it neither had significant products nor exported them. However, this trend started to change with the development of Dhruv, LUH, LCH helicopters, LCA fighter, indigenous Dhanush artillery guns, Brahmos supersonic missiles, aircraft carrier, submarines and ships by

public sector entities in collaboration with private entities. The defence manufacturing gradually started increasing and Indian companies were in the process of creating demand for their products in the international market. Its private sector entities were showing greater involvement in manufacturing. The private sector companies were now not looking to replace the public sector entities as was being envisaged earlier but complement them, fill gaps in defence industry by bringing efficiency in production and promoting their products through their marketing skills.

Conclusion

This chapter examined the emergence of Indian defence forces into professional combat forces possessing the wide-ranging capability to undertake combat, counter-terrorism and HADR operations. It also deliberated on the transformation of Indian defence industry from import defence dependent defence industry into increasing self-reliant industry that was capable of becoming an exporter of advanced defence equipment.

Indian defence forces possessing experience of fighting three full-scale wars, i.e. in 1948, 1965 and 1971, and one limited war (in Kargil) in 1999 with Pakistan, one war with China in 1962 and numerous skirmishes with both the neighbours on the border had gained considerable combat and war-like situations experience and emerged as battle-hardened entities. Also, their experience of fighting insurgency, LWE and terrorism that had internal dimensions as well as was abetted and supported by external agencies, gave them unique experience and distinction of addressing complex security challenges. In addition, they had demonstrated professionalism while undertaking peacekeeping and peace-enforcement missions in different parts of the world under the aegis of the United Nations. They had undertaken HADR missions to provide succour to people within the country as well as to other nations during natural calamities.

After independence, Indian defence forces had largely become importers of advanced defence equipment with Russia being the lead supplier. India's endeavours to develop defence products did not achieve desired results in the past. Its defence industry predominantly comprising of public sector entities could not keep pace with the requirements of defence forces. Also, restrictions on export adversely impacted economic viability of defence products

manufactured by DPSUs. High investment, less volume of orders and uncertainty of contracts kept involvement of private sector entities in defence manufacturing limited to supply of sub-systems. However, the disintegration of Soviet Union forced Indian government to look at the US and other Western countries for the supply of defence products.

The disintegration of Soviet Union and disruption of the supply chain of its defence equipment made India realise the necessity of making its DPSUs competitive as well as harness potential of private sector entities in defence manufacturing. In addition, measures were taken to leverage large procurements to convince foreign OEMs to locally manufacture defence equipment for Indian and other international customers. The strengthening of defence and aviation ecosystem was slow during the two decades following the 1990s and 2000.

There was a major push to focus on indigenous development and local manufacturing to reduce import during mid-2010. Indian private sector companies encouraged by enabling policies started investing in defence industry to manufacture defence products. Indian DPSUs also made an endeavour to produce competitive defence products. By 2016, Indian industry appeared promising that had robustness of DPSUs and pragmatism of private sector players. They were producing a wide variety of land, air and naval products, which had the potential to meet the requirements of Indian defence forces as well as international customers. These understanding of these aspects would help in analysing the potential for cooperation between defence forces and defence industries of India and five CARs.

CHAPTER 5

DEFENCE COOPERATION BETWEEN INDIA AND CARs

India and CARs enjoyed centuries-old historical, cultural and trade relations. After two centuries of colonial rule when India became independent in 1947, the erstwhile Soviet Union not only helped India in establishing industrial eco-system but also became one of the main suppliers of defence equipment. India maintained close cultural relations with the Central Asian Republics (CARs) under the former Soviet Union. After the disintegration of Soviet Union in 1991, India established diplomatic relations with all the five newly borne CARs. The CARs appeared promising for establishing defence collaboration with India due to their geopolitical position and being inheritors of Soviet-era defence industrial enterprises. Also, Central Asian Republics located in the vicinity of the Afghanistan-Pakistan region were strategically important for India. On the other hand, Russia, the largest and most powerful nation in the post-Soviet era enjoyed a pre-eminent position in the region. Influence of Russia, who was also India's major defence equipment supplier, needed to be factored in while establishing defence cooperation with the five CARs. However, India lacked land connectivity with CARs, which limited the scope of defence collaboration between them. The unwillingness of Pakistan to provide road connectivity added to the Challenges, which led to India launching of the 'Chabahar Project' to establish sea-land connectivity with Central Asia via Iran.

The previous chapters discussed India and CARs' defence forces, their organisational structures and training of personnel. The defence forces of CARs faced challenges due to paucity of funds, lack of technical know-how and other constraints. The remnants of erstwhile Soviet-era defence industry inherited by them could not remain functional due to non-availability of holistic defence industrial eco-system and economic challenges. The CARs explored avenues for restructuring remnants of defence industry and equip their newly formed defence forces. India's emerging defence industry and large and professional defence forces having experience of dealing with insurgency, terrorism and internal security challenges, and having fought wars with Pakistan and China possessed operational experience, which could have been gainfully used by the newly formed defence forces of the CARs. The challenges posed by terrorism and the

potential for cooperation between defence forces and defence industries created favourable conditions for establishing mutually beneficial defence cooperation among them.

This chapter deliberates on cooperation between defence forces and defence industries of India and CARs between 1992 and 2016. In order to examine whether the full potential of defence cooperation between India and CARs was made use of, there was a need to understand the scope of defence cooperation between the two. In addition, Russia, viewed to be a successor of former the Soviet Union had concerns about external actors establishing a foothold in the region. However, whether Russian apprehensions and its influence with CARs prevented them from establishing defence cooperation with other countries, needed to be ascertained. Therefore, an endeavour was made to examine pattern of import and export of defence equipment between five CARs and other countries to draw parallels and assess the potential for defence cooperation between India and CARs in the post-Soviet era. This will help in understanding if India was able to establish robust defence cooperation with CARs and achieve its potential.

Cooperation Among the Defence Forces of India and CARs

The geo-strategic location of CARs, need to establish, equip and train their defence forces and common threat of terrorism created shared interest in establishing cooperation between defence forces of India and CARs. Indian defence forces were well established by 1992 and consolidating their capabilities. On the other hand, defence forces of the five CAR had just come into being as independent entities and were in the process of establishing organisational structures, evolving training methodologies and equipping themselves. To understand the scope of defence cooperation among them, it would be prudent to examine the size of the defence forces of India and five Central Asian countries. The exact details of strength of defence forces of all the five CARs during the initial years after their independence in 1991 were not available; therefore, strength of defence forces of India and five CARs commencing for the year 2000, 2009 and 2016 were examined, when significant changes in their strength took place and are shown in the table below:

	2000	2009	2016
India	2,372,000	2,625,586	2,981,050
Kazakhstan	98,500	80,500	70,500
Uzbekistan	79,100	87,000	68,000
Turkmenistan	14,500	22,000	41,500
Kyrgyzstan	14,000	20,400	20,400
Tajikistan	7,200	16,300	16,300

Table: Military Personnel: Source: Data Extract from World Development Indicators, The World Bank, 25 June 2019.

The defence forces of India were much larger than any of the five CARs. Out of the five CARs, economies and size of defence forces of Kazakhstan and Uzbekistan were larger as compared to the other three countries of the Central Asian region. Also, the size of economies and defence forces of Turkmenistan, Kyrgyzstan and Tajikistan were much smaller. The size of defence forces of Turkmenistan in 2016 was 41,500 while that of Kyrgyzstan and Tajikistan were 20,400 and 16,300 respectively. The relatively larger size of defence forces of Turkmenistan was necessitated due to its adoption of permanent neutrality despite the smaller economy. The smaller size of defence forces of Kyrgyzstan and Tajikistan necessitated that they establish bilateral defence cooperation or join collective security arrangement (The World Bank, 2019).

The cooperation between defence forces of India and five CARs covered wide-ranging issues comprising, defence exercises, training, infrastructure development and equipping them. The training courses of defence forces personnel of CARs were covered under the 'Indian Technical and Economic Cooperation' (ITEC) program. India was conducting 280 courses in 47 training institutions for diplomats, military officers and others under the ITEC program. The program covered training on a variety of subjects including on security and strategic studies, defence management, marine and aeronautical engineering, logistics, management, marine hydrography and counter-insurgency. Most of the courses for the defence personnel of friendly foreign countries were conducted in India's prestigious tri-Services defence institutions like NDA, NDC and DSSC, and respective Service training institutions that provided training to army, navy and air force officers. NDA provided pre-Service basic training to officers, DSSC trained officers having approximately seven to fifteen years of Service prior to taking over command of defence Units and NDC provided training to officers that were likely to tenant higher appointments in the respective Service of the defence forces, i.e. Army, Navy and Air

Force of their countries. India also sent its defence experts on deputation to other countries including to CARs for training their defence personnel The details of bilateral cooperation between defence forces of India and five CARs are covered in the succeeding paragraphs (50 Years of ITEC, 2014).

India-Kazakhstan Defence Cooperation

India-Kazakhstan maintained friendly relations since the independence of Kazakhstan and high-level defence engagements between them commenced with the visit of the Kazakh defence minister General S K Nurmangambetov to India in February 1995. During the visit, he interacted with senior leaders, visited training establishments and other facilities of Indian defence forces to identify potential areas of cooperation. It was followed by the visits of Indian Vice President KR Narayanan to Kazakhstan in September 1996 and Kazakh President Nazarbaev to India in December 1996. These engagements led to the establishment of the working group for cooperation in defence. However, it did not result in a substantial increase in level and scope of defence cooperation and their defence engagements remained limited to exchange visits of experts to each other's think tanks.

As part of bilateral interactions, an expert group from Kazakhstan participated in the International Seminar on "Asian Security in the 21st Century' that was organised by IDSA, India at New Delhi in January 2000. A four-member delegation from IDSA made a reciprocal visit to Kazakhstan Institute of Strategic Research (KISS), Almaty in October 2001 for holding dialogue on regional and security issues. Thereafter, there was a gap of five years before Bulat Sultanov, Director of Kazakh Institute of Strategic Studies (KISS) and Leila M. Deputy Director, Institute of World Economy and Politics (IWEP) visited India in January 2006. The team interacted with Deputy National Security Advisor and leading Indian think tanks. The visit of senior functionaries of the KISS and IWEP that were placed directly under the control of Kazakh President was aimed at establishing institutional linkages with Indian think tanks and identifying potential areas of enhancing defence cooperation.

The 11 September 2001 terrorist attack on the US and rise of terrorist activities in Central Asia and adjoining Afghanistan-Pakistan region created a consensus among the global community to form alliances for fighting the threat of terrorism. India-Kazakhstan signed an

agreement on setting up of JWG on international terrorism, organised crime and illicit drug trafficking in June 2002. Indian Defence Minister George Fernandes visited Kazakhstan in 2003 and held discussion with Minister of Industry, Trade and representatives of Defence Industries of Kazakhstan on establishing bilateral defence cooperation and countering the threats of international terrorism. The visit provided the momentum for strengthening defence cooperation and as a result, defence cooperation started to increase slowly but steadily. Two years later, 16-member team from National Defence College - India's premier military training institute that conducted courses for senior officers of the military, para-military forces, friendly foreign militaries and high-level functionaries of government, visited Kazakhstan in May 2005 (GOI, Annual Report 2005-06). As part of confidence-building measures, a joint team of India-Kazakhstan Armies climbed the Mount Nun in September 2006 (Annual Report, GOI, 2006-07).

The political engagement between two countries reached a high point when India invited Kazakhstan President Nazarbayev as Chief Guest at the Republic Day celebrations in January 2009 The higher-level engagement was followed by enhancement in the level of cooperation to multiple domains including defence (GOI, Annual Report, 1992-2017).

Space was one of the potential areas of cooperation as both countries wanted to use space capability for civil-military applications. Indian space program - predominantly focused on civilian applications had made considerable progress while Kazakhstan was at the apex of space activities during the Soviet era. Its Baikonur Cosmodrome was an important satellite launch centre due to its location and orbital dynamics. Indian navigation satellite program and its geo sensing capabilities were approaching a reasonable level of maturity by 2016 while Kazakhstan harboured aspiration for building robust space capability. This aspect was evident in its collaboration with Russia and utilisation of space capabilities for navigation and other applications. India-Kazakhstan signed strategic partnership treaty and agreement for cooperation in Space in 2009. The collaboration in space provided an opportunity for utilising the space capability for multiple applications including in counter-terrorism and other defence applications (GOI, Annual Report, 1992-2017).

International Terrorism, international crimes and drug trade across borders had become a global concern and 'Extradition Treaty' was also signed during the visit of Kazakh President to India in January 2009 to facilitate the extradition of wanted terrorists and criminals (Agreement, GoI, 1992-2019). Kazakhstan was the last of the five CARs to sign an agreement to commence

joint military training exercise, named 'Exercise PRABAL DOSTYK' with India and the first exercise was planned for early 2017. There was a slow but steady increase in military to military engagement between India and Kazakhstan; however, overall cooperation between their defence forces was low and there still existed potential for enhancing the cooperation to a higher level (Singh Mayank, 2018).

India-Kyrgyzstan Defence Cooperation

After becoming an independent nation in 1991, Kyrgyzstan found itself in a challenging situation as it faced political, socio-economic and security challenges. It did not have well-established defence forces to protect its borders, which had to be built from scratch. It started by equipping, establishing defence forces training institutions and training defence forces personnel to bring professionalism. Its weak economy slowed the pace of establishing defence institutions and training facilities while political instability, internal disturbances and terrorism kept its defence forces occupied, which slowed their evolution as professional institutions. In addition, Kyrgyz government's emphasis on internal security resulted in a lesser focus on building professional defence forces.

Kyrgyzstan initially did not take initiative to establish defence cooperation with countries other than CARs and Russia. However, Kyrgyzstan realised the necessity of expanding defence cooperation with countries beyond its immediate vicinity. The 9/11 attacks on the US and the rising threat of terrorism from the Afghanistan-Pakistan region created favourable conditions for Kyrgyzstan to establish defence cooperation with the US and other countries. As regards to India and Kyrgyzstan relations, both countries appeared to be natural allys considering their deep cultural and civilisational affiliations and lack of conflicting interests. However, engagement between defence forces of India and Kyrgyzstan remained negligible in the first decade. The defence cooperation was discussed during the first visit by the Indian Defence Minister, George Fernandez to Krygyzstan from 6-8 Nov 2003. He held delegation-level talks with his counterpart General Esen Topoev, Minister of Defence and met President Aksar Akaev and Prime Minister Nikolai Tanaev of Kyrgyzstan. The level of defence cooperation during the 'Tulip Revolution' that led to overthrowing of the Akaev government in 2005 and after the take-over of the administration by Kurmanbek Bakiev remained at low level. The defence cooperation between

the two nations was revived when Kyrgyzstan Defence Minister Lieutenant General I Isakov visited India in November 2005 to initiate defence dialogue with India (GOI, Bilateral Brief, 2017). Thereafter, cooperation in the sphere of defence witnessed steady progress. As part of capacity-building support, India agreed to help Kyrgyzstan in setting up a joint Mountain BioMedical Research Centre in 2008 (GOI, Briefs 2017).

Indian Defence Minister, AK Antony inaugurated India-Kyrgyzstan Mountain Bio-Medical Research Centre at Bishkek along with Kyrgyzstan President Roza Otunbaeva during his visit to Kyrgyzstan on 5 July 2011. The Bio-Medical Research Centre was set up at Too Ashu Pass at a cost of Rs 6.5 Crores. There was an increase in bilateral engagements after 2011. Kyrgyzstan was keen to deploy its defence forces for UN peacekeeping operations; however, they lacked the experience of operating in unfamiliar international operations. On the other hand, Indian defence forces had considerable experience in undertaking UN peacekeeping operations around the world. Therefore, India conducted UN Peacekeeping courses for Kyrgyz military officers at the Centre for UN Peacekeeping in New Delhi (Indian PMO, 2015). Indian Army had also positioned four men training team that trained Kyrgyzstan Military personnel at Osh and Batken for UN Peace Keeping Operations. India provided equipment for the Kyrgyz Military Field Level-II Hospital for UN Peacekeeping Missions and assisted in training Kyrgyz military hospital staff on the nuances of medical treatment in field conditions (Indian PMO, 2015).

The scope of bilateral military cooperation expanded into defence research and development with the signing of an agreement during the visit of Kyrgyzstan Defence Minister Major General Abibila Kudayberdiyev to India from 8-10 September 2011**,** which could facilitate enhancing of engagement between their defence industries. This was followed up with the visit of a 20-member special task force of Defence Ministry of Kyrgyzstan to India from 29 November-21 December 2011 to take part in joint commando training. These engagements enabled Kyrgyz military personnel to familiarise with nuances of anti-terrorist and special operations being undertaken by Indian military. These exchanges were useful for the Kyrgyzstan defence forces, who faced the threat of terrorism from within the country as well as from the one emanating from neighbouring Afghanistan-Pakistan region (GOI, Annual Report, 2011-12)

Indians were at the forefront of Information Technology (IT) and Indian armed forces leveraged expertise of Indian industry in IT in improving training and operational preparedness. India helped Kyrgyzstan in establishing Usenbekov IT Centre at the Military Academy of the

Armed Forces of the Kyrgyz Republic, which was named after Soviet Hero Lieutenant General K. Usenbekov. India had established three IT-Centres in Kyrgyz Military Institutions, which were upgraded to incorporate advancements in technology. The cooperation between two nations in the IT domain was an innovative and important domain, which had the potential to improve training and operational preparedness at lower costs. Also, cybersecurity was another area with a potential for establishing collaboration considering India possessed necessary expertise and it could train Kyrgyz defence forces personnel in cybersecurity aspects.

The visit of Indian Prime Minister Narendra Modi to Kyrgyzstan in July 2015 provided the much-needed impetus to strengthen and expand bilateral cooperation including in the defence domain. President of Kyrgyzstan, Almazbek Atambaev during the visit of Indian Prime Minister to Kyrgyzstan said, "Today India is one of the main centres of the global influence, and of course for our region and for Kyrgyzstan India is a significant partner. For more than 20-years history of diplomatic relations, we have established a full partnership dialogue. And we are ready for close bilateral cooperation with India" (Atamabev, 2015). The signing of defence cooperation agreements and enhanced scope and scale of bilateral defence cooperation covered defence, military education, training, joint military exercises, exchange of information and experience, military instructors and observers, etc. (GOI, Agreement, 2015). India-Kyrgyzstan-2015 agreement on defence cooperation broadened the engagement to the field of defence technology**,** which was missing from defence engagement profile till then (GOI, IKJS, 2015).

The newly formed Kyrgyz defence forces lacked operational training and to bridge this gap, Indian and Kyrgyz militaries participated in the first joint training exercise named 'Khanjar' in 2011. The aim was to develop an understanding of military operations of each other and establish standard operating procedures for joint operations. However, joint training exercise was discontinued for the next four years. The exercise was revived during the visit of Indian Prime Minister in July 2015 when it was decided to make 'Khanjar' an annual event. As a result, 'Khanjar-II' was held between special forces of armed forces of two countries in Kyrgyzstan in March 2015 and 'Khanjar-III' took place at Gwalior city of India in March-April 2016 (GOI, IKJS 2016).

Both India-Kyrgyzstan had large and high mountainous ranges. India had experience of fighting wars with Pakistan and China as well as protecting high and hostile mountainous region during peacetime. On the other hand, newly formed Kyrgyz defence forces lacked experience of

protecting its borders in hostile mountainous terrain. India helped Kyrgyzstan in setting up Joint Mountain Training Centre in the city of Balykchi, in Issyk-Kul District of Kyrgyzstan in 2016. The Centre was to provide instructions and training to personnel of Armed Forces of Kyrgyzstan as well as become a centre for hosting Kyrgyzstan-India Joint Mountain training exercises. (GOI, IKJS, 2016). In addition, defence forces of both countries participated in joint mountaineering expeditions was part of confidence-building measures. The joint teams from Indian and Kyrgyz militaries participated in expeditions to Stok Kangri peak located in Ladakh region of India in 2011, Lenin Peak in Kyrgyzstan in August 2013 and JOGIN-III peak having an elevation of 6113 meters above sea level and located in Central Himalaya in India in 2016 (GOI, IKJS 2016).

India and Kyrgyzstan also agreed for bilateral exchange visits of youth wing of the armed forces that imparted elementary military training to school and college students. Kyrgyz President Almzbek Atambayev signed an MoU in the field of cooperation in youth exchange between National Cadets Corps (NCC) of India and Military Lyceum of Kyrgyz Republic during his visit to India from 18-21 December 2016. The cooperation was aimed at not only helping in building bridges among the defence forces but also creating brand ambassadors of friendship in society and defence forces. Overall, defence cooperation between Indian and Kyrgyz military was on upwards trajectory by the end of 2016 (GOI, IKJS 2016).

India-Tajikistan Defence Cooperation

Tajikistan occupied a prominent position in India's security calculus due to its geo-strategic location in the region and close proximity to Pakistan Occupied Kashmir (POK). Preventing infiltration of extremists that were trained and equipped in the volatile Afghanistan-Pakistan region was a common concern for both Tajikistan and India. Tajikistan had large porous borders and its newly formed military could have gained from the expertise of Indian defence forces having considerable experience in dealing with externally abetted terrorist activities (GOI, Annual Report, 2000-01).

India and Tajikistan protocol of cooperation dated 15 February 1993 and joint declaration dated 12 December 1995 provided the basis for establishing cooperation in the defence domain. India's military assistance to Tajikistan started with the setting up of the field hospital towards

the mid-1990s in Farkhorair base located 100 km south-east of the capital Dushanbe for treating fighters of anti-Taliban alliance headed by Ahmed Shah Mashood. However, the hospital was closed down when NATO established ISAF mission, which was viewed as a strategic blunder by India. Indian companies later constructed a runway at Khojendt Airport in Tajikistan in September 2000 to facilitate air operations for providing medical, logistics and other support to Tajik defence forces (GOI, Annual Report, 2000-01).

In an endeavour to enhance the scope of defence cooperation, a Memorandum of Understanding (MoU) on Technical Cooperation was signed during the visit of President of Tajikistan Emomali Rahmonov (also known as Emomali Rahmon) in May 2001. Bilateral agreements and joint declaration signed during the visit provided a framework for expanding the cooperation in counter-terror operations, multilateral and international organistions. It was also decided to establish Indo-Tajik Joint Commission to strengthen scientific, technological and industrial relations that had the potential to become the pillar for extending cooperation in defence industry and defence trade. Tajikistan government's support for India's candidature for permanent membership of the UN Security Council and common views of both countries on terrorism emanating from the Afghanistan-Pakistan region, illegal transfer of weapons, drug trafficking and organised crimes indicated convergence of interest in these domains. A framework was also established for cooperation on counter-terrorism operations. In the post 9/11 terrorist attack[24] period, Afghanistan-Pakistan region became a hotbed of terrorist activities, some of the terrorist groups operated against both India and Tajikistan. This made them realise the necessity of reestablishing cooperation to fight these threats (Joseph, Josy 2011).

In 2003, Indian Prime Minister Atal Bihari Vajpai became the first Indian Prime Minister to visit Tajikistan after the disintegration of the Soviet Union. India and Tajikistan signed 'Friendship and Cooperation' treaty, Extradition Treaty', agreed for an economic package of USD40 million for Tajikistan, and established Joint Working Group for combating International terrorism to strengthen cooperation between the defence forces of two countries (GOI, Annual Reports, 1992-2017).

The India-Tajikistan Joint Working Group (JWG) on countering International Terrorism was formally established during the visit of Tajikistan Defence Minister Colonel General Sherali Khairulloevich Khairulloev to India in January 2005, which provided a formal structure for

[24] Terrorist attacks were carried out on the USA on September 11, 2001.

consultations on terrorism. However, its operationalisation was slow as it took one year for the first meeting to take place at Dushanbe on 9 and 10 January 2006. The second important aspect of defence cooperation was capacity building of Tajik defence forces and an agreement for training of Tajik officers was signed during the visit of Tajik President Rahmonov to India in August 2006. It was a well-known fact that non-availability of the international convention was a major hurdle in dealing with terrorism and both countries advocated early finalisation of 'Comprehensive Convention on International Terrorism' by the UN in their joint statement (GOI, Treaty/ Agreement 1992-2019). The level of defence cooperation continued to increase and as part of higher-level engagement between the defence forces of the two countries General VK Singh Chief of Army Staff, Indian Army, Air Marshal Krishan Kumar Nohwar, Vice Chief of Air Staff (VCAS), IAF and AK Antony Defence Minister of India visited Tajikistan in November 2010, August 2011 and October 2011 respectively (GOI, Annual Reports, 1992-2017).

India-Tajikistan also established a Joint Working Group (JWG) for defence cooperation and India committed to support development of Tajikistan Defence capacities to enhance stability and security of the region during the visit of Tajik President Emomali Rahmon to India in September 2012. The contribution of India in the capability building of Tajikistan defence forces of CARs was also acknowledged in the joint statement issued at the end of Tajik President's visit. Also, both countries elevated their relationship to the long-term 'Strategic Partnership' of which defence cooperation was an important element. India increased total number of slots for training Tajikistan officers in India under ITEC program to 150 to help in strengthening the capability of Tajik defence officers (GOI, Annual Reports, 1992-2017).

India had offered to establish a military field hospital in Tajikistan in 2010-11 to help it in its fight against terrorists (Joseph, Josy, 2011). India built a friendship hospital at Qurgen Teppaand to develop health facilities in Tajikistan defence forces. The hospital was needed for treating injured Tajik defence personnel fighting insurgency and terrorism as well as for their general well being, which was essential for improving their operational readiness (GOI, Agreements 1992-2017).

In 2003, India helped Tajikistan in renovating disused Ayni airbase (also known as Gissar) that was located 15 Km west of Tajik capital Dushanbe to provide air mobility to Tajik defence forces, improve their logistics and medical support capability along Tajikistan-

Afghanistan border for fighting terrorism. The project involving the renovation of runway, control tower and three hangers (Putz Catherine, 2003) was completed in 2007 at a cost of USD70 million. The base was officially operationalised on 3 September 2010 (Unnithan Sandeep, 2015).

India's interest in leasing this base was generated due to various events including India-Pakistan Kargil conflict in mid-1999, hijacking of Indian Airlines flight IC-814 to Kandahar, Afghanistan in December 1999 and Afghanistan-Pakistan region becoming a hotbed of terrorism. India offered to position its military aircraft in Tajikistan to train Tajik air force personnel as well as help them restore and maintain Soviet-era aircraft and helicopters for operational use, however, it was not an easy task as aircraft operations require extensive spare and logistics support. The feasibility of positioning Russian helicopters and aircraft was deliberated so that it could seek the help of Russia for maintenance, repair and overhaul of Tajik air assets while Indian technicians could provide technical advice to Tajik air force personnel till they gain adequate experience. The project did not fructify due to reservations of Russians, who wielded influence over the Tajik leadership, their interest in involving Tajikistan in regional security arrangement and stationing of Russian defence forces in Tajikistan. Later, India, Tajikistan and Russia signed a trilateral agreement to operate this base on a rotational basis to help Tajikistan operationalise this base (Unnithan Sandeep, 2015).

India's endeavour was to strengthen the capability of defence forces of Tajikistan to help them fight terrorism, which also posed threat to India. The opposition to India's support to Tajikistan defence forces came from Pakistan, who had reservations against India's defence cooperation with Tajikistan. Pakistan continued to view India with suspicion and wanted to prevent India from establishing defence cooperation with Tajikistan. Pakistan's apprehension against India's cooperation with Tajikistan was despite the fact that Tajikistan did not share border with Pakistan and Tajik endeavours in capability building of its defence forces were aimed at protecting 1400 Km long border with Afghanistan.[25] In an endeavour to dissuade Tajik leadership from offering airbase to India, Pakistan had offered to renovate two disused Tajik airbases and train its military personnel (Unnithan Sandeep, 2015).

India continued to support Tajikistan military in capability building as it trained military cadets and officers of Tajik defence forces. It positioned a training team in Tajikistan to prepare

[25] Pakistan is separated from Tajikistan by Afghanistan's narrow Wakhan corridor

Tajik cadets for entrance into India's tri-Services training academy, i.e. NDA at Khadakvasla, India. Senior Tajik officers attended short-term training courses at Indian Defence training establishments free of charge under the ITEC program. India offered to extend necessary security assurance in the nuclear weapons-free zone in Central Asia in the joint statement issued at the end of the visit of Tajik President in September 2012 (ITJS, GOI, 2012). India also supplied one Mi-8 helicopter and six military transport trucks on 16 February 2013 as part of ongoing support to capability build-up of Tajik military (Tajikistan Air Force, 2018). India-Tajik Joint Working Group (JWG) on Defence Cooperation regularly met to monitoring progress, challenges and other issues related to defence cooperation between the two countries. As part of the bilateral engagement of higher defence training institutions, a delegation from NDC led by Major General Satinder Kumar Saini visited Tajikistan from 18-22 May 2015 (ITJS, GOI, 2015).

Indian Prime Minister Narendra Modi emphasised that defence cooperation was one of the main pillars of partnership between the two countries during his visit to Tajikistan on 13 July 2015. Tajikistan supported India's membership to the Shanghai Cooperation Organisation (SCO) and called for improving connectivity through the International North-South Transportation Corridor (INSTC). The SCO provided India with a platform for engagement while INSTC had the potential to improve the viability of India-Iran Chabahar transportation corridor and both were expected to help India in strengthening economic and defence engagement with CARs including Tajikistan. The defence engagement between India and Tajikistan especially in capacity building of Tajik defence forces had grown substantially during the period of this study (ITJS, GOI, 2015).

India-Turkmenistan Defence Cooperation

India-Turkmenistan enjoyed civilisational and cultural links, which were strengthened by India signing the Turkmenistan, Afghanistan, Pakistan and India (TAPI) Inter-governmental Agreement and Gas Pipeline Framework Agreement in December 2010 and Gas Sale and Purchase Agreement in May 2012 to meet its rising energy needs. However, defence cooperation between the two nations remained at a low level. The principle of 'Permanent Neutrality' dictated the trajectory of Turkmenistan's defence cooperation with other countries including India. The

principle of Permanent Neutrality prevented Turkmenistan from establishing cooperation with multilateral defence organisations and groups.

The common threat of terrorism, aspirations for economic and strategic independence; and potential for defence industrial and military training collaboration and absence of conflicts of interests provided common grounds for India and Turkmenistan for establishing defence cooperation. However, shared interests did not take their defence relations to a higher level and lack of connectivity added to challenges. To correct this anomaly and as part of India's policy of holistic engagement with CARs, a joint Indian MEA and MoD delegation visited Turkmenistan in September 1999 to explore the potential for strengthening co-operation including in the defence sector. The Deputy Minister of Defence of Turkmenistan visited India and participated in the Defence Expo in October 1999 to witness technological developments globally and examine the potential for establishing defence cooperation with India.

As part of engagements between Indian and Turkmenistan defence community, a team of Turkmenistan experts participated in International seminar on 'Asian Security in the 21st Century' organised by IDSA, India in New Delhi from 24-25 January 2000. After the visit of Turkmenistan Defence Minister in 1999, there was a long gap in higher-level engagement before Indian Defence Minister AK Antony met the First Deputy Minister of Defence of Turkmenistan at Ashgabat on 18 November 2013. India and Turkmenistan defence relations after two decades of neglect had witnessed forward movement after 2013. After the election of Prime Minister Narendra Modi in 2014, India launched a special drive to strengthen relations with CARs. As part of this strategy, an agreement on Defence Cooperation was signed during the visit of Indian Prime Minister Narendra Modi to Turkmenistan in July 2015. India assigned 17 defence slots to military officers of Turkmenistan in the same year. After the signing of this agreement, there was an increase in engagements among their defence forces.

A two-member Turkmen naval delegation headed by Deputy Chief of Naval Forces participated in the International Fleet Review at Vishakhapatnam from 3-9 February 2016. This was followed by the visit of Defence Minister of Turkmenistan, Colonel General Yaylym Berdiev to New Delhi from 16-17 February 2016, two-member Turkmenistan delegation to Defence Expo at Goa from 27-30 March 2016, Chief of Turkmenistan Air Force to India in July 2016 and visit of Colonel Yusup Muhammetgulyyev, Deputy Minister of Defence to New Delhi on 3-5 November 2016 for participation in the Asian Ministerial Conference on Disaster Risk

Reduction (AMCDRR). India also agreed for conducting a tailor-made course on Counter-Terrorism for 20 personnel of Turkmenistan Land Forces in January 2017. As a whole, defence cooperation between the two nations during the period of study remained at a low level (GOI, Annual Report, 1992-2017).

India-Uzbekistan

India and Uzbekistan relations had deep roots in history and engagement between the two remained cordial during the Soviet period. India established diplomatic relations with Uzbekistan after the disintegration of Soviet Union in 1991 and regular high-level engagements were maintained since then. The visits of Indian Prime Minister P V Narasimha Rao in 1993, Prime Minister Manmohan Singh on 25-26 April 2006, Narendra Modi in 2015 and the visits of Uzbek President Karimov to India in 1991, 1994, 2000, 2005 and 2011 indicate that both nations attached high importance to maintaining strong and friendly relations (GOI, Agreement, 2016).

The foundation of India and Uzbekistan bilateral relations was laid with the signing of the treaty on principles of inter-state relations and cooperation during the visit of Indian Prime Minister Narasimha Rao to Uzbekistan from 23 to 25 May 1993 (Annual Report 1993-94). Uzbekistan unlike other CARs did not need outside support during the formative years of its defence forces as they had inherited reasonably well-established structures and manpower in sufficient numbers from former Soviet Union. Also, it needed time to introduce necessary changes in their organisational structures and formulate training patterns before engaging with other countries. The cooperation between Indian-Uzbek defence forces was insignificant during the 1990s and it was built slowly in due course. Initially, there was a need to identify areas for bilateral cooperation and establish a framework for meaningful defence engagement. In one such an exercise, experts from Uzbekistan participated in the international seminar on "Asian Security in the 21st Century" organised by the Institute of Defence Studies and Analysis (IDSA) in New Delhi from 24-25 January 2000 (GOI, Annual Reports, 1992-2017).

The evolution of digital technology and better connectivity enabled criminals and terrorists of different nationalities from around the globe in aiding, abetting and carrying out terror attacks. The common threat of international terrorism necessitated establishing of legal cooperation and having a mutual treaty that allowed the extradition of criminals and terrorists

between different nations. India-Uzbekistan signed 'Extradition Treaty' in May 2000, which was followed with the signing of agreement for setting up of Joint Working Group on Combating International Terrorism in 2003 (GOI, Agreement, 2019).

The defence engagement between two nations was elevated to higher level and formalised with the signing of agreement on cooperation in Military and Military Technical areas between Ministry of Defence of Uzbekistan and India during the visit of Uzbekistan President Islam Abduganievich Karimov to India from 4-6 April 2005. They also decided to cooperate in the fight against terrorism on a long-term and sustained basis. However, absence of international Comprehensive Convention on International Terrorism was preventing coordinated action against international terrorism, which was a major concern and both sides called for early finalisation of the Convention. This agreement on defence cooperation and shared interests provided foundation to take forward defence engagement between two nations to a higher level and make it multi-domain engagement. As a result, a series of high-level visits took place, which included visit of Air Chief Marshal SP Tyagi, Chief of Staff, Indian Air Force to Tashkent on 7-8 June 2006. Also, Indian Army trained Uzbek officers and contingent of Uzbek Special Forces (GOI, Annual Report, 2006-07). However, there was scope for enhancing the scale and span of cooperation. As a result, both countries decided to upgrade level of cooperation and established "strategic partnership" during the visit of the Uzbek President to India in May 2011 (IUJS, GOI, 2005).

A need was felt for strengthening bilateral defence cooperation to counter conventional and sub-conventional threats including extremism and terrorism. Indian Prime Minister, Narendra Modi's tour of five CARs commenced with the visit to Uzbekistan in July 2015. India and Uzbekistan agreed to strengthen cooperation in defence, security, cybersecurity, exchanges of experts and establish engagement with each other under the SCO framework (Indian Prime Minister, 2015).

The increasing connectivity of critical infrastructure, government establishments, public services, banks, economic institutions and defence installations made them a lucrative target for cyberattacks by adversaries, terrorists and anti-establishment forces to create conditions favourable for imposing political will thus making it another instrument of war. There is a greater realisation of the need for collaborations among friendly nations to learn from

experiences of each other, share information and learn best practices to protect their vital installations.

The security of critical infrastructure sectors as well as networked defence command and communist setup, has become a priority area for most countries India has established the necessary infrastructure and gained reasonable expertise in this domain. As part of expanding cooperation in the cybersecurity domain, an MoU was signed between Indian Computer Emergency Response Team (CERT-In) under Department of Electronics and Information Technology of Republic of India and Information Security Centre (ISC) under the Ministry of Development of Information Technologies and Communications of the Republic of Uzbekistan on 25 January 2016 (Agreement, GOI, 1992-2017). Agreements, MoUs and multi-domain cooperation between the defence forces of two nations indicated strengthening of defence cooperation; however, overall defence cooperation was still at a low level. There was scope for expanding it to a higher-level considering complementary capabilities, common threats, shared interests and underutilised potential of defence cooperation between the two nations.

Cooperation Among the Defence Industries of India and CARs

The five Central Asian Republics had become independent nations after the break up of superpower - Soviet Union, which was also one of the leading defence equipment manufacturers of the world. On the other hand, India had been a buyer of defence equipment from former Soviet Union and its defence industry was not known for developing and exporting defence equipment. The potential for establishing mutually beneficial cooperation with the defence industries of India was expected to be viewed with suspicion by the policymakers and experts of five Central Asian Republics due to baggage of the past.

Indian government had set up infrastructure and institutions for developing defence equipment within the country after independence in 1947. However, it did not view the development of defence equipment to be a business venture. As a result, it did not introduce measures to make defence industry to be an economically viable industry. Also, it did not encourage the participation of private sector for production and export of defence equipment. The policy gaps and lack of coherent approach added to challenges of Indian Defence Industry,

which struggled to stand on its feet and meet the requirements of its defence forces. On the other hand, defence industrial units in Soviet Union were built in different parts of the country including in five CARs; however, none of them had complete and holistic defence industrial eco-system, which, became a limitation for the CARs in the post-Soviet era.

After the disintegration of Soviet Union in 1991, political, demographic, industrial and economic realities of five Central Asian republics had changed significantly. The remnants of Soviet defence industry inherited by five Central Asian Republics (CARs) witnessed distribution, re-organisation and re-orientation between 1992 and 2016. This was also the period that witnessed consolidation of Indian Defence industry. However, most policymakers, government functionaries, scholars and members of civil society of newly formed CARs had served in various capacities in the erstwhile Soviet government and their perceptions and understanding of Indian defence industry were expected to pose challenges for the emerging Indian defence industry.

Researchers had not adequately studied the changing dynamics of defence industrial cooperation between India and five CARs of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. There were apprehensions that Indian defence industry exporting defence equipment to CARs could face challenges from Russia, which was India's closest ally during the cold war era and was still one of the largest suppliers of defence equipment to India. On the other hand, there was a possibility of stakeholders, policymakers and experts in CARs not viewing Indian defence industry to be a potential supplier of defence equipment. There was a need to examine whether adequate potential existed for Indian defence industry to establish defence industrial cooperation with CARs especially considering the presence of Russia in the region.

Imports, Exports and Defence Industrial Cooperation by CARs

This section deliberates on import, export, joint ventures and collaborations by five CARs, i.e. Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan with other countries including India. The pattern of import and export of defence equipment by CARs with countries in the backyard of Russia would help in understanding the potential for establishing defence cooperation with CARs. The comparison of the pattern of defence industrial relations of CARs

with other global players vis-a-vis India would help examine whether adequate potential existed for Indian defence industry to establish defence cooperation with CARs. Secondly, whether India and CARs leveraged this potential optimally for establishing defence industrial cooperation amongst them.

Kazakhstan

Kazakhstan after becoming an independent nation with large geographical area needed a large number of air, ground and naval equipment to protect its borders and economic and security interests. It became one of the largest importers of defence equipment in the Central Asian region. However, its economic condition like other newly formed CARs was delicate and it reverted to austerity measures. During the first decade, most of the equipment acquired from Russia was in lieu of Russian debt to Kazakhstan under the barter deal, which included L-39 C Albatros Trainer aircraft, project-22180 patrol craft, MiG-29 fighter aircraft and Su-25 Ground attack aircraft. Till the end of 1990s, its emphasis was on procuring second-hand defence equipment from especially from Russia to meet defence equipment requirements, which included SA-10 SAM Systems, IL-77 M transport aircraft, S-300 P/ SA-20 A SAM system (SIPRI, 2019).

With the strengthening of its economy and the rising threat of terrorism emanating from Afghanistan-Pakistan region especially after the 11 September 2001 terrorist attack on the USA, it diversified defence equipment procurement from global manufacturers. The key aspect of its defence acquisition philosophy was to maintain cordial relations with Russia while pursuing defence cooperation with other countries. Its inventory of defence equipment acquired from Russia was large and varied, which included Su-30 MK FGA aircraft, Mi-35 assault helicopter, Mi-8 MT/ Mi-17 V-5 transport helicopter, M-8 and M-17 armed helicopters for border guards, BTR-80 Armoured Personnel Carrier (APC), BTR-80A and BTR-82A Infantry Fighting Vehicle (IFVs), BPM-97 APC, ANSAT Light helicopter, SU-27UB-2 fighter aircraft, AT-9 anti-tank/ Armoured Fire Support Vehicle (AFSV), Igla-1/SA-16 portable SAMs, Tigr Armoured Patrol Vehicle (APV) and TOS-1 Self-propelled Multiple Rocket Launchers (MRL) (SIPRI, 2019).

Ukraine and Israel soon became Kazakhstan's major suppliers of defence equipment. Ukraine provided Soviet origin missiles, transport aircraft and IFVs (many of which were second hand) that included AN-72A and AN-74 transport aircraft, R-23 and R-27 Beyond Visual Range

Air to Air Missiles (BVR AAM), Kh-29 Anti-Shipping Missile (ASM) and R-2 Anti-Tank Missiles and BTR-3U Guardian IFV. Kazakhstan signed defence cooperation agreement with Israel in January 2014 and this collaboration was in those areas in which Israeli defence industry had made considerable progress. Kazakhstan procured unmanned systems, border security, command and control systems and satellite communications from Israel (Blackwell, 2014). Israel defence industry known for developing innovative defence capabilities supplied defence equipment and upgraded Russian and Kazakh defence equipment, which included Lynx self-propelled MRL, Semser 122 mm self-propelled gun installed on Russian truck chassis, CARDOM 120 mm Mortar for Kazakh MT-LB APC, Extra Guided rocket/ Surface to Surface Missile (SSM) for Lynx MRL and Litening Aircraft EO System for Su-27 fighter. It also procured defence equipment from other defence manufacturers, which included C-295 transport aircraft from Spain, PW-100 turboprop engine for C-295 from Canada and EC-145 light helicopters from Germany (SIPRI, 2019).

Kazakhstan procured Wing Loong-I UAVs from China, which established a foothold in the country and in Central Asia. The procurement of defence equipment from China indicated Kazakhstan's willingness to procure defence equipment from a country, which was a collaborator as well as a competitor of the big brother of the region, i.e. Russia. Russia, on one hand, had deep economic relations; however, its export of defence equipment to China was shrouded with concerns about the reverse engineering of its defence technology and yet it could do little against increasing influence of China in the region. Kazakhstan also bought second hand Bell-205/ UH-1 Huey-2 helicopters from the United States, which was competitor and adversary of Russia since the cold war period (SIPRI, 2019).

Kazakhstan like any other big country harboured the aspiration of manufacturing and assembling defence equipment within the country. It leveraged its defence procurement to seek technology transfer, know-how and establish joint ventures to assemble and co-produce weapons. Towards this aim, it assembled 90 Marauder APC Mbombe-6 IFVs acquired from South Africa and two Ground Master-400 Air Search Radars from France. The details of defence equipment imported by Kazakhstan between 1992 and 2016 are given in the table below.

Import of Defence Equipment by Kazakhstan					
Import From	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**

Canada	PW-100 Turboprop Aero engines	2012/2013-2016	12		For C-295 transport aircraft from Spain
China	Wing Loong-1 UAV	2015/ 2016	3		
France	Ground Master-400 Air Search Radar	2014/2014-2018	2		
Germany	EC-145 Light Helicopter	2010/ 2011-2017	12		Assembled in Kazakhstan as KH-145 (some helicopters delivered to Non-government agencies
Israel	Lynx Self Propelled MRL	2006/ 2008-2009	18		USD30 million deal, Kazakhs designation Nayza
	Semser 122 mm	2006/ 2008-2009	6		Part of USD120 million deal; Kazakh D-30 towed guns rebuilt to Semser self-propelled version on truck chassis from Russia
	CARDOM 120 mm Mortar	2007/ 2008-2009	18		Part of USD120 million deal; Kazakh 2B11 mortars rebuilt on Cardom Version for use on Kazakh MT-LB APC, Kazakh designation Aybat
	EXTRA Guided rocket/ SSM	2007/ 2008-2009	50		For Lynx MRL
	Litening Aircraft EO System	2007/ 2009-2019	10		Litening-3 version; for Su-27 combat aircraft modernized in Belarus to Su-27 M2
Russia	Project-22180 Patrol Craft	2009/ 2010-2014	3		Kazakh designation Sardar
	L-39C Albatros Trainer Aircraft (Second-hand)	1995/ 1996-2000	13		Received in lieu of Russian Debt to Kazakhstan (under barter system)
	MiG-29 Fighter Aircraft (Second-hand)	1995/ 1995	12		Received in lieu of Russian Debt to Kazakhstan (under barter system)
	Su-25 Ground Attack Aircraft (Second-hand)	1995/ 1997	14		Received in lieu of Russian Debt to Kazakhstan (under barter system)
	Su-30 MK FGA aircraft	2015/2015-2016	6		Su-30 SM version
	Mi-35M Combat Helicopter	2015/2016	4		
	5V55U/SA-10 SAM System	2000	40		Second-hand
		2013/2015	200		Second-hand
	IL-76 M Transport Aircraft	1998/ 2000	1		Second-hand
	S-300P/SA-10A SAM System	1998/2000	1		Second-hand
		2013/2015	5		Second-hand

	Mi-8MT/Mi-17 V-5 Transport Helicopter	2002/2002	3		
	Mi-8/ Mi-17 Helicopters	2002/2004-2007	14		USD63 million deal for anti-terrorist and anti-narcotics operations
		2007/2009-2012	12		Mi-17 V-5
		2012/2013-2015	10		MI-17 Sh armed version for border guards
		2016/2016-2017	3		Mi-17 Sh version for border guards
	BTR-80A Infantry Fighting Vehicles (IFVs)	2003/2004-2005	14		
		2007/2007-2009	79		USD40 million deal
	BPM-97 Armoured Personnel Carrier (APC)	2006/2008	18		Probably for border guard
	BTR-80 APC	2006/2008	1		
		2011/2012	17		
	ANSAT Light Helicopter	2007/2008-2009	3		
	N-001 Myech Combat ac radar	2007/2010	2		N-001 V version: for Su-27 UB combat aircraft modernized to Su-27 UB M2 in Belarus
	9M120 Ataka/AT-9 Anti-tank missile	2010/2011-2013	120		For BMPT AFSV
	BMPT Terminator Tank/ Armoured Fire Support Vehicle (AFSV)	2010/2011-2013	10		
	BTR-82 A Infantry Fighting Vehicle (IFV)	2010/2011-2012	44		
		2012/2015-2017	90		
	Igla-1/SA-16 Portable SAM	2010/2013-2014	20		For Project-22180 patrol
	TigrArmoured Patrol Vehicle (APV)	2010/2011-2012	21		
	TOS-1 Self-propelled Multiple Rocket Launcher (MRL)	2010/2011	3		
South Africa	Marauder APC Mbombe-6 IFV	2013/2016-2018	90		Produced in Kazakhstan as Arlan Barys version
South Korea	Sea Dolphin Patrol Craft	2005/2006	3		Second-hand; aid; armament removed before delivery
Spain	C-295 Transport Aircraft	2012/2013	2		
		2013/2014	2		Option for 4 more
		2015/2016	2		
Turkey	AB-25 Patrol Craft	1999/1999	1		Second-hand; aid
		2001/2001	1		Second-hand; air
	Cobra APV	2012/2012	7		

		2012/2014	40		Possibly incl assembly in Kazakhstan
Ukraine	Kh-29/AS-14 Kedge ASM	1999/1999	3		Second-hand
	R-23/AA-7 BVRAAM	1999/1999	4		Second-hand
	R-73/AA-11 SRAAM	1999/1999	4		Second-hand
	BTR-3U Guardian IFV	2005/2005	2		BTR-3E version
	R-27/AA-10 BVRAAM	1999/1999	4		Second-hand
		2011/2012-2013	50		
	An-72A Transport Aircraft	2010/2011-2012	2		
	An-74 Transport Aircraft	2012/2013	2		Second-hand
	R-2 Anti-tank missile	2013/2013-2014	40		For 2 Project-22180 patrol craft from Russia
United States	Bell-205/UH-1 Huey-2 helicopter	2003/2004	6		Second-hand UH-1H rebuilt to Huey-2 air against terrorists
		2007/2007	2		Second-hand UH-1H rebuilt to Huey-2 air against terrorists
		2011/2012-2017	4		Second-hand UH-1H rebuilt to UH-1H-2 before delivery
	HMMWV Up-Armoured APV	2007/2008-2009	40		M-1151 version
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The procurement of defence equipment by Kazakhstan gives an understanding of its evolving relations with global powers and neighbouring Russia, who under President Vladimir Putin was reviving its defence industrial complexes, developing capabilities and emerged as the most powerful state in the post-Soviet era. Russia continued to be Kazakhstan's biggest supplier of defence equipment while Israel, Ukraine and the USA were other big defence equipment suppliers. Ukraine supplemented its requirement of transport aircraft and provided air armament like air-to-air, anti-ship and anti-tank missiles, which were needed to arm its Russian origin fighter aircraft (SIPRI, 2019).

The acquisition of towed guns, mortars, rockets and EO/IR pods from Israel strengthened firepower and mobility of its ground forces and improved sensing and weapon delivery capabilities of its fighter aircraft fleet. The defence equipment procured from the US consisted of second-hand modified light utility helicopters and APVs, which were meant for improving capability of its defence forces for undertaking anti-terror operations. The procurement of EC-145 helicopters, aircraft engines, C-295 transport aircraft, patrol craft, IFVs and radars filled

technological gaps and provided new capabilities to its defence forces. The procurement of defence equipment for its land, air and naval forces from diverse suppliers indicates its willingness to diversify defence procurement from different countries depending upon their capabilities, quality and excellence in design and performance (SIPRI, 2019).

The pattern of import of defence equipment by Kazakhstan in the post-Soviet era indicated its aspirations for self-reliance in defence manufacturing, diversification of defence equipment procurement. It maintained robust defence industrial relations with Russia on one hand while diversifying defence equipment procurement from other countries. Kazakhstan's establishing of defence industrial relations were dictated by its national interests and its close relations with Russia did not prevent it from establishing defence industrial relations with other global defence equipment manufacturers.

Kazakhstan had strong relations with Russia and Russian leadership made endeavours to having a regional security treaty with former Soviet republics and limit the influence of the US and other countries in establishing defence relations. However, Kazakhstan started establishing defence industrial relations with other countries and imported defence equipment from Canada, China, France, Germany, Israel, South Africa, South Korea, Spain, Turkey, Ukraine and the United States between 1992 and 2016, which indicated its willingness to look beyond Russia. This is despite the fact that Western countries like France, Germany, Canada and the United State were democracies, who differed with Russia on various issues. Similarly, Kazakhstan importing armed drones from China in 2015 indicated not only Kazakhstan's willingness to import but also increasing influence of neighbouring China in the backyard of Russia (SIPRI, 2019).

Exports of Defence Equipment by Kazakhstan					
Exported To	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
Angola	BM-21 Grad 122 mm Self-propelled MRL	1998/1998	4		Second-hand
	D-30 122 mm Towed Gun	1998/1998-1999	28		Second-hand
	M-46 130 mm Towed gun	1999/2000	6		Ex-Kazakh
Congo	BM-21 Grad 122 mm Self-propelled MRL	1999/1999-2000	3		Ex-Kazakh
Ethiopia	D-30 122 mm Towed	1999/2000	100		Ex-Kazakh

	Gun				
	M-46 130 mm Towed Gun	1999/2000	6		Ex-Kazakh
Georgia	9M114 Shturm/ AT-6 Anti-Tank missile	2005/2006	758		
India	53-65 AS Torpedo	1993/1997-2001	15		For INS Delhi (Project-15) destroyers
Kyrgyzstan	M-8MT/Mi-17 Transport Helicopter	2003/2004	2		Ex-Kazakh; USD3.5 million deal (financed by USA) MI-8 MTV version
Macedonia	BTR-80 APC	1998/1998	12		Ex-Kazakh
Nepal	Mi-8/Mi-17 Transport Helicopter	1999/2001	2		Second-hand; USD5.8-7 million deal; modernized before delivery; for use against Maoist rebels
North Korea	KS-19 100 mm AA gun	1995/1995	24		Second-hand
	MiG-21 Bis Fighter Aircraft	1998/1999	34		Second-hand; 6 more confiscated in Azerbaijan while being delivered in a USD 8 million illegal deal
Serbia	Igla-1/SA-16 Portable SAM	1995/1995	226		Second-hand; deal included 57 launchers
Sri-Lanka	An-24 Transport Aircraft	1995/1996	4		Second-hand; lease; being flown by Kazakh crew
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During the Soviet era, the defence industrial complexes located in Kazakhstan produced a variety of systems, sub-systems of defence equipment and a few of the complete defence equipment. These included weapons for tanks, IFVs, small arms, systems and components for missiles, torpedoes (Kirov plant), anti-torpedo technology, radars, etc. After independence, Kazakhstan tried to revive re-organise and re-orientate its domestic defence industry in the first two decades of independence to produce civil-military equipment in the country. However, it faced challenges due to limitations of its economy, remnants of Soviet-era defence industry and challenges from Russia.

Kazakhstan predominantly initially sold excess second-hand Soviet-era defence equipment like self-propelled MRL, towed guns, fighter aircraft, transport helicopters, transport aircraft, anti-aircraft guns and shoulder-launched short-range surface to air missiles to other countries in the first decade. It achieved limited success in sustaining its domestic defence

industry as it exported limited quantity of domestically produced defence equipment, which included towed guns, MRL, anti-tank missiles, Torpedoes, Helicopters. Its export reduced drastically and there was no known export after 2006. Kazakhstan export of defence equipment was spread to countries of different geographical locations and political ideologies, which included Angola, Congo and Ethiopia in Africa; former Soviet republics of Georgia and Kyrgyzstan; India, North Korea, Nepal, Sri Lanka in Asia and Serbia and Macedonia in Europe. The progressive decline and later discontinuation of export by the Kazakh defence industry were due to the absence of comprehensive defence industrial ecosystem and its inability to revive its defence industry (SIPRI, 2019).

As regards to Kazakhstan-India defence industrial trade, India imported 15 Torpedos from Kazakhstan during this period; however, it did not export any product to Kazakhstan. Indian defence industry made significant progress in defence equipment manufacturing especially after 2010. The overall level of cooperation between India and Kazakhstan remained at a low level (SIPRI, 2019).

Kazakhstan had set an ambitious goal of reaching among the top 30 developed countries by 2050. The endeavour was to achieve self-reliance in critical domains including in defence and aerospace industry. It took steps to re-orientate its defence industry by investing in research and development, placing emphasis on local manufacturing of civil-military products. It encouraged foreign OEMs to assemble products in Kazakhstan, establish collaborations and JVs and offload manufacturing of components, systems and equipment to the domestic industry.

The establishing of collaborations and JVs with several global defence manufacturers to fill technology gaps, promote local manufacturing and strengthen the domestic industry. Its collaborations with Eurocopter to assemble and undertake MRO on EC-145 helicopters in 2010, ASELSAN of Turkey for Night Vision Devices in 2011 and Indira Sistemas of Spain for radars in 2011 diversified procurement while providing access to some of the advanced equipment produced by OEMs other than Russia. It also bargained for assembly of equipment and undertake MRO in the country through technology transfer. These deals indicate that adequate scope exists for Indian defence industry to expand cooperation with Kazakhstan (TNN, 2013).

The defence industry cooperation between India and Kazakhstan was negligible during most of the period of study, i.e. between 1992 and 2016. The Strategic partnerships agreement signed in 2009 became the pillar to establish multi-faceted cooperation between the two nations.

The 2009 agreement was followed by the singing of "Defence and Military-Technical Cooperation" agreement during the visit of Indian Prime Minister to Kazakhstan in July 2015, which provided a framework for establishing and strengthening cooperation between defence forces and defence industries of two nations.

Indian defence industry had not matured adequately nor export of defence products in the global market was not a priority during the first two decades of the study. Kazakh defence industry during the same period was struggling to revive and re-orientate for manufacturing civil-military products due to disruption of the Soviet-era defence ecosystem. However, defence industries of both India and Kazakhstan made significant progress during the last five years of study and they started making a pitch for exporting some of their land, air and naval equipment during defence Expos. The progress made by their respective defence industries created new avenues for strengthening defence industrial cooperation between the two countries. Also, increasing level of defence industrial cooperation of Kazakhstan with other countries comprising import and joint manufacturing of defence equipment indicates scope for other countries including India to enhance bilateral defence industrial cooperation with Kazakhstan.

The aspiration of Kazakhstan to locally manufacture defence products provides an opportunity to Indian public and private sector defence industry to establish mutually beneficial collaborations and joint ventures with Kazakh defence industry. However, Indian defence industry may have to work harder to prove worth of their products to potential customers in Kazakhstan, where India was viewed to be an importer of defence equipment during the Soviet era. Indian defence industry could face competition from Russia and China, as they possess greater leverage in Kazakhstan. These factors would need to be factored by India while considering defence industrial engagements with Kazakhstan.

Kyrgyzstan

After the disintegration of Soviet Union in 1991, Kyrgyzstan's Defence industry predominantly centred around lake Issyk-Kul torpedo testing site in Karakul province and Dastan Engineering. Issyk Kul lake was unique as it was ideally suited for underwater testing and recovery of torpedoes. On the other hand, Dastan Engineering Company produced a range of Torpedoes, rockets, missiles, mines and homing and designation devices, which have been discussed in the

previous chapter. The VA-11 Shkval torpedo was amongst the best torpedo in the world, which was capable of achieving unprecedented 200 kts speeds. There was a need to examine the potential of establishing collaboration between defence industries of India and newly formed Kyrgyzstan. Therefore, pattern of import and export of defence equipment by Kyrgyzstan was examined to understand the size and potential of its defence industry.

Import of Defence Equipment by Kyrgyzstan					
Import From	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
Kazakhstan	Mi-8 MT/M-17 Transport Helicopter	2003/2004	2		Ex-Kazakh; USD 3.5 million deal (financed by USA); Mi-8MTV version
Russia	Mi-8 MT/MI-17 Transport Helicopter	205/2005	1		Probably second-hand; part of USD 3 million aid (in return for Russia's access to Kyrgyz airbase)
	D-30 122 mm Towed Gun	2014/2015	10		Second-hand; aid
	BTR-70 APC	2015/2015-2017	60		Rebuilt to BTR-70 M before delivery; aid
Supplier Unknown	An-2 Light transport aircraft	2006/2006	4		Second-hand; financed by the USA
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Kyrgyzstan's import during the period of the study, i.e. from 1992 to 2016 was limited to three Mi-8/Mi-17 passenger transport helicopters, 10 towed artillery guns, 60 APCs and one transport aircraft, which were obtained as remuneration for allowing Russians to use its territory and as aid from the USA. The import of helicopters and light transport aircraft indicated its emphasis on using air assets for air transportation and logistics support tasks and not for offensive air combat missions.

Export of Defence Equipment by Kyrgyzstan					
Exported To	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
Canada	Mi-8T Transport Helicopter	2008/2008	6		Second-hand; leased via Canadian company; for use in Afghanistan
Croatia	MiG-21 PFM Fighter aircraft	2002/2003	4		Ex-Kyrgyz; MiG-21 UM trainer version

India	Mi-24 P/ Mi-35P Assault Helicopter	1994/1995	15		Second-hand; designation uncertain
	MiG-21 PFM fighter aircraft	2003/2003	19		Ex-Kyrgyz; MiG-21 UM trainer version
	SET-65 Yenot-2 ASW torpedo	2006/2006-2007	36		Probably for Delhi (Project-15) destroyer and Talwar frigates possibly assembled in India
	SET-65 Yenot-2	2011/ 2015-2017	14		Possibly assembled in India
Sudan	Mi-24 P/ Mi-35P Assault Helicopter	1994/1995	1		Ex-Kyrgyz; numbers could have been 4
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On the other hand, its exported Soviet-era fighter aircraft, combat helicopters and torpedoes, which it had inherited at the time of independence. The export comprised of six Mi-8T transport helicopter to Canada, four MiG-21 PFM fighters to Croatia, 15 Mi-24/Mi-35PAssault Helicopters, 19 MiG-21 PFM fighter aircraft and 50 Yenot-2 ASW torpedo to India and one Mi-24 P/ Mi-35 P Assault Helicopter to Sudan. Most of the items were second hand and exported before 2007 except for 14 torpedoes. Overall, capability of its defence industry was limited and its weak economy restricted the scope for reviving its defence industry as well as procuring defence equipment from foreign countries.

On the other hand, Indian military shipbuilding industry was on upswing towards the end of 2016 with several ongoing projects for building a variety of combat ships, submarines and aircraft carriers, however, it was struggling to build sensors and weapons, which was a weak link. India wanted to develop them and the capability of Kyrgyz industry was of interest to India. India had explored the feasibility of rebuilding and developing state of the art torpedo testing site at Issyk Kul lake in 2011. The testing site was equipped with sensors to monitor speed, velocity, homing and direction of torpedoes, which enabled scientists to improve accuracy and effectiveness of torpedoes. The site had the facility to recover torpedoes after firing, which enabled designers to carry out post-launch assessment of structures and onboard systems for necessary modifications and upgradation of the torpedoes. The site was suitable for testing Autonomous Underwater Vehicle and similar systems that were being developed by Naval Scientific and Technological Laboratory of India (PTI, 2011).

Another strength of this testing site was the availability of sizable number of military personnel and their families in Karakul, who had been associated with the testing of torpedoes and operation of the site. These local experts and companies were an invaluable human resource; however, there was no collaboration among them. India had bought a few torpedoes from Kyrgyzstan; however, overall defence industrial cooperation between the two nations remained limited till 2015. To strengthen defence cooperation, India and Kyrgyzstan signed agreement of defence cooperation during the visit of Indian Prime Minister Narendra Modi to Kyrgyzstan on 11-12 July 2015. The agreement provided the framework, which could be leveraged for enhancing the scope and extent of defence cooperation between the two nations (GOI Briefs, 2017).

Tajikistan and Turkmenistan

Turkmenistan and Tajikistan are the two Central Asian Countries, which did not inherit significant defence industry from the former Soviet Union, which contributed to the absence of defence export by them. Therefore, it was decided to examine details of imports of defence equipment by Turkmenistan and Tajikistan from foreign countries and OEMs and types of equipment imported by them to understand their pattern of imports and draw parallels to examine the scope of defence cooperation between India and these two CARs. The details of import of defence equipment by both countries are given below.

Import of Defence Equipment by Turkmenistan					
Import From	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
Austria	Survivor-2 APC	2010/2011	10		
Belarus	Caracal Tank Destroyer	2010/2011	4		
China	AR-1 Anti Ship Missile (ASM)	2015/2016	10		For CH-3 Armed UAV
	CH-3 Armed UAV	2015/2016	2		
	CM-502 KG ASM	2015/2016	10		For WJ-600 Jet engine armed UAVs
	FM-90 SAM system	2015/2016	1		
		2015/2016	40		
	HQ-9 SAM	2015/2016	1		

		2015/2016	75		
	KS-1A SAM System	2015/2016	1		Probably KS-1C version
		2015/2016	50		
	WJ-600 UAV/UCAV	2015/2016	2		
	YLC-18 Air Search Radar	2015/2016	1		
	YLC-2 Air Search Radar	2015/2016	1		YLC-2V version
Czechoslovakia	RM-70 122 mm Self-propelled Multiple Rocket Launchers (MRL)	2015/2016	6		Probably second-hand
France	Mistral Self-propelled MRL	2012/2013-2017	28		For Simbad RC SAM on P-1200 OPV
Georgia	Su-25 Ground Attack aircraft	2003/2004	1		Payment for debt; Su-25 KM version
Germany	D-2848 Diesel engine	2010/2011	10		For 10 Survivor-2 APC from Austria
	MTU-4000 Diesel engine	2014/2015-2017	12		For 6 Dearsan 33 m FAC from Turkey
Israel	Combat Guard APV	2015/2016	1		
Italy	AW-139 Helicopter	2010/2011	4		Part of EUR 64m deal (incl 1 more for government VIP transport)
	Falco UAV	2010/2011	3		EUR 8.7 million deal
	A-109 K Light Helicopter	2011/2016	4		A-109 E Power version
	Compact 40 L70 Naval Gun	2011/2011-2012	2		EUR 7 million deal; for 2 YTBK patrol craft from Turkey
		2012/2013-2016	8		For 8 YTBK patrol craft
	Marte-2 Anti-Ship missile	2014/2015-2017	25		For 6 Dearsan 33 m FAC
Netherlands	Scout sea search radar	2011/2011-2012	25		For 6 Dearson 33m FAC
	Variant Air/ Sea search radar	2011/2011-2012	2		For 2 YTBK patrol craft
	Scout Sea search radar	2012/2013-2016	8		For 8 YTBK patrol craft
	Variant Air/ Sea search radar	2012/2013-2016	8		For 8 YTBK patrol craft
Russia	BM-9A52 Smerch Self-propelled MRL Kh-35 Uran/SS-N-25 Anti-ship missile	2008/2009-2010	8		Probably USD 70 million deal
	Project-1241/Tarantul S-125 Pechora-2M SAM	2008/2011	2		Project-12418 (Tarantul) FAC

	system				
	V-601/SA-3B SAM System	2008/2015/2016	100		For Pechora-2M and Pechora-2BM
	BTR-80A IFV	2009/2009	8		Designation uncertain (reported as armoured vehicles)
	Mi-8MT/Mi-17 Transport Helicopter	2009/2010	2		USD 22-23 million deal; Mi-17 IV version
	Project-12200/ Sobol Patrol Craft	2009/2009	2		
	T-90S Tank	2009/2009-2012	10		
	9M117 Bastion/ AT-10 Anti-tank missile	2010/2011	60		For BMP-3 IFV
	BMP-3 IFV	2010/2010	6		
	Igla-S/SA-24 Portable SAM	2012/2013	60		
	Kh-35 Uran/SS-N-25 Anti-ship missile	2013/2013-2014	25		USD 30-40 million deal
	Mi-8/Mi-17 Transport Helicopter	2014/2015	2		
Turkey	YTBK Patrol craft	2011/2011-2012	2		EUR55 million deal
		2012/2013-2016	8		Assembled from kits in Turkmenistan; possibly including 2 FAC version; Turkmenistan designation Tuzla
	Dearsan 33m FAC	2014/2015-2017	6		
	Cobra APV	2015/2016	8		Kirpi version
UAE	NimrArmoured APV	2016/2016	12		
Ukraine	Kolchuga Air Search system	2003/2003-2004	3		Paid with natural gas
	DR-76 Gas turbine engine	2008/2011	4		For 2 Project-1241 (Tarantul)
	DR-77 Gas turbine engine	2008/2011	4		For 2 Project-1241 (Tarantul)
	Grom IFV turret	2008/2008	4		Probably for modernization of Turkmeni BTR-80 APC
	An-74 Transport aircraft	2010-2011-2012	2		AN-74TK-200 version
	2A/36 Giatsint-B 152 mm Towed gun	2011/2012	6		Second-hand
	2A65 MSTA-B 152 mm Towed gun	2011/2011	6		Second-hand
	M-46 130mm Towed gun	2011/2011	6		Second-hand
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2016, Accessed 25 June 2019

Export of Defence Equipment by Turkmenistan					
Exported To	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
	No information available				
SIPRI Transfer of Major Weapons: Deals with Deliveries or Orders Made for 1992 to 2016, Accessed 25 June 2019					

In the absence of policies and data of defence cooperation released by these two CARs, the scope of India-Turkmenistan defence cooperation was examined by studying the pattern of defence imports by them. In addition, geopolitical realities, adoption of permanent neutrality, economic conditions, internal and external challenges of Turkmenistan were taken into account to understand the trajectory of defence industrial relations. Turkmenistan adopted permanent neutrality after becoming an independent nation, which was recognised by the UN in 1995. The adoption of the permanent neutrality by Turkmenistan was a bold decision considering the existence of territorial disputes among newly formed states, weak economic conditions and internal and external challenges. The absence of defence industry, defence institutions and structures added to the challenges. There were interesting developments in the region with Russia making endeavours to revive past affiliations with CARs while the US, Europe, China and others were making endeavours to get a foothold in the region by establishing defence industrial partnerships (SIPRI, 2019).

Turkmenistan's neighbouring nations had established defence partnerships with Russia as well as varying degree of defence industrial collaborations with the US, NATO, Europe, China and other nations. The adoption of permanent neutrality and unwillingness of Turkmenistan to join any groupings made it stand apart from other CARs. This necessitated that Turkmenistan established strong air, sea and naval forces as well as acquired large numbers and types of defence equipment from different countries to defend its interests.

Turkmenistan imported defence equipment from countries spread across the continents. However, the pattern of defence equipment import indicated interesting trend, e.g. Turkmenistan's import of defence equipment unlike other CARs was negligible during the first

seventeen years of independence, i.e. till 2008 and thereafter, defence equipment import by Turkmenistan increased at a rapid rate. It imported maximum defence equipment from Russia comprising MRLs, SS-N-25 ASM, SA-24 SAMs, AT-10 ATM, BTR-80A and BTR-3 IFVs, Mi-8 MT/ Mi-17 transport helicopters, Sobol Patron Craft and T-90s tanks. It procured defence equipment from European countries, which included APCs from Austria, Tank destroyers from Belarus, Multiple Rocket Launchers (MRLs) from Czechoslovakia, Self-propelled MRLs from France, diesel engines from Germany, AW-139 and A-109 helicopters, Falco UAVs, L-70 Guns, Marte-2 Anti-Ship Msls from Italy, radars from Netherlands. The procurement of Kolchuga air search system, DR-76/77 gas turbine engines, Grom IFV turret, AN-74 transport aircraft and Towed guns from Ukraine (SIPRI, 2019).

China became defence equipment supplier to Turkmenistan rather late and supplied its defence equipment between 2015 and 2016. China's export to Turkmenistan comprised of CH-3 tactical armed UAV and WZ-600 jet engine armed UAVs, missiles and Radars. Turkmenistan became the largest buyer of defence equipment from China in the Central Asian Region. The defence equipment procurement from other countries included procurement of APVs from Israel, YTBK Patrol craft, Dearsan FAC and Cobra APV from Turkey, and Nimr APV from UAE.

The pattern of defence equipment procurement by Turkmenistan was aimed at protecting its interests, as it had already made its intention known that it did not want to become a member of any treaty or group. The emphasis of Turkmenistan's procurement of defence equipment was on UAVs/UCAVs, SAMs, Air to Ground missiles and radars for strengthening its aviation and air defence systems. It diversified defence equipment procurement; however, one significant aspect was that it did not procure defence equipment from the US.

Its defence equipment procurement comprised of second-hand equipment and in limited quantity. Russia was the largest supplier of defence equipment with China being the second-biggest supplier. The procurement of defence equipment from China, Italy, Czechoslovakia, Turkey, Netherlands and other countries indicated its willingness to expand defence cooperation with countries beyond Russia. Its procurement of defence equipment from different countries was dependent upon their expertise, technological excellence and to some extent their lower cost as indicated by types of defence equipment and their countries of origin.

Turkmenistan's defence services procured Italian Falco UAV, which is also used by the Pakistani defence forces. Similarly, Turkmenistan's defence cooperation with Turkey is

increasing with the procurement of patrol craft, FACs and APVs. Turkmenistan's defence industrial relations with China, Turkey and Pakistan is a factor, whose implications would need to be examined by India. This could become an important element for India while establishing defence industrial cooperation with Turkmenistan. On the other hand, Turkmenistan's historical relations with India and its openness in procuring defence equipment from other countries indicate that scope exists for India in establishing cooperation in defence technologies (SIPRI, 2019).

Tajikistan also had no defence industry and was dependent on import for equipping its defence forces. Russia and Bulgaria were the only two defence equipment suppliers of Tajikistan with Russia being the largest supplier.

Export of Defence Equipment by Tajikistan					
Exported To	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
	No Information available				
SIPRI Transfer of Major Weapons: Deals with Deliveries or Orders Made for 1992 to 2016, Accessed 25 June 2019					

Import of Defence Equipment by Tajikistan					
Import From	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
Bulgaria	BM-21 Grad 122 mm Self-propelled MRL	2013/2013	15		Second-hand
Russia	Mi-8MT/Mi-17 Transport Helicopter	1993/1994	10		Second-hand;Mi-8MTV version
		2006/2006	2		Second-hand; part of USD 26 million aid.
	Mi-24P/Mi-35P Assault Helicopter	2006/2006	2		Second-hand; part of USD 26 million aid.
	L-39C Albatros Trainer aircraft	2007/2007	4		Second-hand; aid
	S-125 Pechora-2M SAM system	2007/2009	1		
	V-601/SA-3B SAM	2007/2009	50		For S-125-2M SAM system
	BTR-70 APC	2015/2016	26		Rebuilt Second-hand BTR-70; aid
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Its defence equipment obtained from Russia comprised of Mi-8 MT/ Mi-17 transport aircraft, Mi-24/ Mi-36 P armed assault helicopters, L-39 C Albatros trainer aircraft, S-125 Pechora-2M, V-601/ SA-3B SAM systems and BTR-70 APCs. Its defence forces were equipped for undertaking land operations with air defence and logistics support from air element comprising air transport, armed assault, ground assault and surface to air defence capability (SIPRI, 2019).

Uzbekistan

After independence, Uzbekistan inherited defence equipment in substantial quantity and a number of defence manufacturing units that were located in the Uzbek Soviet Socialist Republic during the Soviet era. These defence industrial entities produced thousands of aircraft, aero-engines, mortars, mines, grenades, parachutes and wires during the Soviet era. TAPiCH plant inherited by Uzbekistan was one of the largest and most important defence manufacturing entity for building transport aircraft during the Soviet era. Its endeavours to revive manufacturing of engines, mortars, mines, grenades, parachutes and wires faced challenges due to absence of holistic defence industrial ecosystem. Its defence manufacturing industry predominantly led by aviation industry slowly became defunct, which is visible in the near absence of import in the first decade of independence (and the first decade of the study) and a sharp increase in import of defence equipment by Uzbekistan in the second decade and half of the study as given in the following tables.

Import of Defence Equipment by Uzbekistan					
Import From	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
Canada	PW 100 Turboprop/ turbo shaft engine	2014/2015-2016	8		For 4 C-295 transport aircraft from Spain
China	Wing Long-1 MALE Armed UAV	2013/2014	5		
France	AS-350/AS-550 Fennec Light helicopter	2013/2014-2016	8		AS-350 B version
	EC725 Super Cougar Transport Helicopter	2013/2015-2016	8		H-225 version
Russia	BTR-80 APC	2001/2001-2002	50		Part of USD50 million deal
Spain	C-295W Transport Aircraft	2014/2015-2016	4		
United States	Cougar APC	2014/2015	50		Second-hand; aid
	M-ATV APV	2014/2015	159		Second-hand; aid
	Maxx Pro APC	2014/2015	70		Second-hand; aid

	Rg-33 APC	2014/2015	50		Second-hand; aid
SIPRI Transfer of Major Weapons: Deals with Deliveries or Orders Made for 1992 to 2016, Accessed 23 Jul 2019					

The pattern of import of defence equipment by Uzbekistan indicates it followed a policy of diversification in defence procurement with predominant tilt towards the Western defence equipment manufacturers. Uzbekistan received second hand APC and APVs as aid from the US. It imported variety of advanced defence equipment including C-295 transport aircraft from Spain, AS-350/ AS-550 Fennec Light Helicopters and EC 725 Super Cougar Transport Aircraft from France. It also bought Western aero-engines for Russian origin transport aircraft that were originally built in its own factories during the Soviet era but could not remain operational due to absence of holistic aviation ecosystem and lack of orders in the capital intensive heavy transport aircraft industry. Its collaboration with the US and Western countries and their defence equipment manufacturers indicated its willingness to establish and expand defence industrial cooperation with competitors of former Soviet Union and present-day Russia (SIPRI, 2019).

The procurement of Wing Loong-1 MALE armed UAV from China was an interesting development in terms of China's sale of defence equipment to another Central Asian Republic, i.e. Uzbekistan. The Chinese defence industry is producing a variety of defence equipment; however, it chose to export UAVs, which appears to be a well-considered choice. China had established a lead in developing armed UAVs and offered its armed UAVs for export, which no UAV from the US, Russia and other global defence suppliers could match the cost and easy terms of payment.

China silently made inroads in Central Asia by establishing defence industrial relations with Central Asian Republics including Uzbekistan. On the other hand, Russia appeared to be losing out in its defence industrial relations with Uzbekistan and this aspect gets substantiated from the fact that Uzbekistan despite being the former Soviet Republic and inheriting a huge number of Soviet-era defence equipment, procured only 50 BTR-80 APC from Russia during the entire period of the study. The low level of defence industrial cooperation with Russia indicates its changing priorities and dynamics of defence industrial cooperation with Russia and increasing opportunities for other global defence equipment manufacturers including India (SIPRI 2019).

Export of Defence Equipment by Uzbekistan					
Exported To	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
China	IL-76MD Transport Aircraft	2014/2015-2016	3		Second-hand modernized in Russia before delivery)
Georgia	Mi-24/ Mi-35 P Combat Helicopter	2004/2005	1		Second-hand
India	IL-78 M Tanker Transport aircraft	2001/2003-2004	6		USD150 million deal
	A-50 Ehl AEW&C aircraft	2004/2009-2011	3		Part of USD1.1 billion deal ordered via Israel and Russia
SIPRI Transfer of Major Weapons: Deals with Deliveries or Orders Made for 1992 to 2016, Accessed 25 June 2019					

Uzbekistan's export of 12 transport aircraft and one attack helicopter during the entire period of study was a meagre number considering it inherited one of the biggest transport aircraft manufacturing plants of the Soviet era. Its export comprised of three IL 76 MD transport aircraft to China, one Mi-24/ Mi35 P Combat helicopter to Georgia and six IL-78 M air-to-air refuelling aircraft and three A-50 E AEW&C aircraft to India. The low level of export indicated disruption of Soviet-era defence industrial ecosystem and limitations of expertise available within the country. The departure of Russian engineers and technicians after the disintegration of USSR adversely impacted chances of revival of its domestic aircraft manufacturing industry. Its endeavours to revive TAPiCH in collaboration with Russia never took off due to hot and cold relations between the two nations. It possessed knowledge of 'Know What' and 'Know How' and not the 'Know Why' of aircraft that were being built in its factories, which became a limitation in reviving it. Also, the paucity of funds and lack of convergence with Russia ensured that its huge aircraft industry did not survive. As a result, the TAPiCH plant was closed in 2015, which brought an end to the one of the biggest aircraft manufacturing plant of erstwhile Soviet Union.

Indian defence forces having the largest inventory of Russian origin transport aircraft including IL-76 transport and IL-78 air-to-air refuelling aircraft would have benefitted from collaboration in Aeronautics Industry of Uzbekistan, which was on the decline after independence. Uzbek engineers and contractors possessed experience of manufacturing, maintaining and overhauling large-bodied aircraft including AN-124, AN-225, IL-76, IL-78, A-50 and IL-114-100 transport aircraft while Indian defence industry despite its plans for developing transport aircraft lacked some of those capabilities and faced challenges in

developing them, which indicates the existence of convergence of interests (SIPRI, 2019). However, there was no collaboration between the two nations regarding the development and manufacturing of transport aircraft and systems. This domain despite being an important area of convergence was not leveraged by India to fill its transport aircraft manufacturing technology gaps.

India-Central Asian Republics

India imported defence equipment from Kazakhstan, Kyrgyzstan and Uzbekistan at different times between 1992 and 2016 while it did not import any equipment from Turkmenistan and Tajikistan. The import of defence equipment from Kazakhstan, Kyrgyzstan and Uzbekistan did not mean that they had significant defence industry as defence equipment imported by India were mostly of Soviet-era period, which these countries had inherited at the time of independence. The import from these countries was limited, which decreased with the passage of time due to the disruption of their respective Soviet-era defence industrial eco-systems. The import of defence equipment from CARs by India was negligible towards the end of the study in 2016. The details of defence equipment import and export between India and CARs are given in the succeeding section (SIPRI, 2019)

India's Import of Defence Equipment from Central Asian Republics					
Import From	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
Kazakhstan	53-65 AS Torpedo	1993/1997-2001	15		For INS Delhi (Project-15) destroyers
Kyrgyzstan	Mi-24P/ Mi-35P	1994/1995	15		Second-hand,
	MiG-21 PFM Fighter Aircraft	2003/2003	19		Ex-Kyrgyz; MiG-21 UM
	SET-65 Yenot-2 ASW torpedo	2006/2006-2007	36		Probably for Delhi (Project-15) destroyers and Talwar class frigates
		2011/2015-2017	14		Probably assembled or produced in India
Uzbekistan	IL-78M Tanker/ transport aircraft	2001/2003-2004	6		USD150 million deal; IL-78-MK version
	A-50 Ehl AEW&C aircraft	2004/2009-2011	3		Part of USD1.1 billion deal (Incl USD350

					million advance payment); ordered via Israel and Russia, fitted with Israeli Phalcon AEW system in Israel
SIPRI Transfer of Major Weapons: Deals with Deliveries or Orders Made for 1992 to 2016, Accessed 25 June 2019					

India's Export of Defence Equipment from 1992 to 2016					
Export to	**Equipment**	**Year of Order/ Delivery**	**Qty**	**Total Qty**	**Remarks**
No data is available					
SIPRI Transfer of Major Weapons: Deals with Deliveries or Orders Made for 1992 to 2016, Accessed 11 December 2019					

On the other hand, there was no data to indicate that India exported defence equipment to any of the CARs during the entire period of the study. The lack of data on export of defence equipment by Indian companies would normally be related to the absence of domestic defence industry; however, this could be an incorrect deduction due to certain reasons. Firstly, India had exported helicopters, land and naval equipment to other countries; however, its Defence Public Sector entities like HAL, BEL, etc. as well as private sector companies did not appear prominently in the list as exporters of defence equipment due to low value and volume. Secondly, India did not treat defence export to be a priority and revenue-earning domain especially during the first half of the study. During the second half of the study, Indian government had initiated structural and policy reforms, which included introduction of Offset provisions in defence procurements (DPP), the launching of Make in India initiative to promote domestic manufacturing and allowing the export of defence products. The export figures were not yet substantial towards the end of the study in 2016; however, these could change in the times to come due to rising capabilities of Indian defence industry, increased domestic consumption and acceptability of domestic products in Indian defence forces, which was an achievement considering they were used to acquiring defence equipment from best global OEMs. However, Indian defence industry would need to fill technology gaps, focus on quality, cost effectiveness and develop userfriendly product support packages to establish defence industrial collaborations with CARs.

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Conclusion

The defence cooperation comprising cooperation between defence forces and defence industries is an important pillar of overall engagement between India and the five Central Asian Republics. India and five CARs established varying degree of cooperation among their defence forces; however, their potential had not been fully made use of. The extent and scope of defence cooperation was relatively low during the period of study. The absence of land connectivity and lack of cooperation from Pakistan to allow India access to CARs through its territory were some of the reasons that made it difficult to enhance cooperation including in the defence domain. Towards the end of the study, India and CARs understood the need for enhancing cooperation among their defence forces and this aspect was apparent in a gradual but steady increase in cooperation among their defence forces by strengthening bilateral as well as multilateral mechanisms.

The cooperation among their defence industries was even lessor. The CARs inherited remnants of Soviet-era defence industries; however, all of them struggled to revive. Kazakhstan was in the process of building its defence industrial complexes by undertaking R&D, establishing collaboration and Joint Ventures with foreign OEMs towards the end of the study. It had resorted to assembly, repair, maintenance and overhaul of defence products; however, its defence industry had not yet matured into independent manufacturing entities. Uzbekistan struggled to revive its aeronautics industry and was looking for partnerships. Kyrgyzstan faced challenges in maintaining the existence of remnants of its defence industry and testing centres while Tajikistan and Turkmenistan did not have significant defence industry. Turkmenistan adopted permanent neutrality and had initiated concerted weapons procurement drive towards the end of the period of the study to equip its defence forces to protect its interests without joining multilateral organisations.

India, who did not view its defence industrial export as a priority area in the past was going through transformational changes to become a defence equipment manufacturer and exporter. The defence industry reforms instituted by the Indian government in the last decade of the study had started showing signs of transformation. They were producing a number of defence equipment and weapons and their induction by Indian defence forces was a significant step forward. Indian defence products were ready to make a mark and establish a foothold in the

global defence market. The initiatives taken by Indian government to reform public sector, enhanced participation of the private sector, promote export and India's willingness to allow foreign OEMs export their products from Indian territory had set the stage for enhanced defence industrial cooperation between India and five CARs.

CHAPTER 6

CONCLUSION

Defence industry is an indicator of scientific and technological progress while defence forces are guarantors of safety and security of nations. Defence cooperation among nations comprising cooperation between their defence industries and defence forces secure their interests as well as help them in building strategic relations. After the break up of USSR in 1991, Central Asia described by the British geographer Halford John Mackinder as the "Pivot of Influence" in 1904, became the new frontier for the great game. The newly formed five CARs of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan made endeavours to re-orientate their Soviet-era defence industries and establish defence forces institutions. The establishing of defence cooperation with CARs became a priority for leading powers. China, Russia and the US emerged as key players in defence dynamics of the region and they established defence cooperation with the five CARs through bilateral and multilateral mechanisms to secure their interests.

The civilisational links, absence of conflicting requirements and India's lack of hegemonic ambitions provided a strong foundation for establishing defence cooperation between India and CARs. However, defence cooperation between India and newly formed five CARs remained relatively under-explored despite having complementary capabilities among their defence forces and defence industries and facing the common threat of terrorism originating from the Afghanistan-Pakistan region. To fill this research gap, this study was undertaken to examine extent and pattern of India's defence cooperation with five Central CARs of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan , comprising cooperation between their defence forces and their defence industries between 1992 and 2016.

The study commenced with the examination of India and CARs' security challenges, capabilities and limitations of their defence forces, and defence manufacturing industries. It examined the pattern of five CARs' defence cooperation with three key powers of the period, i.e. China, Russia and the US bilaterally as well as through multilateral organisations. The lessons were analysed to ascertain scope for India for establishing defence cooperation with CARs.

Lastly, the study examined the pattern of cooperation between defence forces and defence industries of India and five CARs to draw conclusions that are deliberated in the following section.

Defence Forces of Central Asian Republics

The CARs faced challenges posed by long and porous borders, presence of powerful China and Russia, global powers competing for establishing influence in the region and terrorism emanating from volatile Afghanistan-Pakistan region in the neighbourhood. The meagre water, mineral and other resources, and hasty delineation of boundaries created disputes that had potential to become flashpoints among neighbouring countries. Their defence forces had to protect their countries against external threats, prepare for the challenge posed by border disputes, deal with radicalised individuals, prevent drug smuggling and clashes among rival clans, protect their national governments from powerful clans and prevent movement of terrorists from unguarded borders. Therefore, external threats, domestic challenges and aspirations of defence forces to become independent entities defined the constituents and evolution of defence forces of the CARs.

The swift disintegration of Soviet Union in 1991 gave little time to CARs to build defence forces institutions. The absence of holistic ecosystem, paucity of resources and non-availability of defence institutions forced them to establish defence cooperation with other countries through bilateral agreements as well as through multilateral organisations to protect their interests. The trajectory of developing defence forces and establishing cooperation with defence forces of other countries differed for each CAR.

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Kazakhstan

Kazakhstan having a 17 million population and the largest GDP of USD 137.3 billion in 2016 was most progressive nation amongst the five CARs, which had one of the largest boundaries to protect (The World Bank, 2018). After becoming an independent nation in 1991, Kazakhstan

followed propragmatic approach for developing its defence forces. It established cordial relation with regional and global powers by settling border disputes with Russia and China, and giving up nuclear weapons. However, giving up of nuclear weapons also necessitated building robust conventional defence forces to protect its large borders.

Kazakhstan focused on building conventional defence forces having all the three elements comprising army, air force and navy that were equipped with Soviet-era defence equipment. However, its defence forces lacked operational experience, which came to limelight when its defence forces suffered casualties in 1995 during their deployment in the Tajik Civil war as part of CIS forces. Kazakhstan also established Maritime Border Guards in 1993 to protect oil-rich Caspian Sea region, which was made an independent entity in 2003.

It focused on modernisation of defence forces, improving their training, equipping them with modern armament and making its defence forces agile and mobile to protect its large and sparsely populated country. It paid special attention to building domestic defence industry, establish collaborations in defence equipment manufacturing and make its defence forces professional by participation in joint exercises to prepare them for countering envisaged threats. It diversified defence equipment procurement as it acquired mine Countermeasure vessels from Russia, developed Unmanned Underwater Vehicles (UUVs) with French assistance and acquired patrol boats from Turkey. Also, it acquired aircraft, ships and anti-ship missiles from Western countries despite concerns from Russia. Besides, Iran had raised concerns over its rising naval capability - with whom it had dispute over the Caspian Sea.

Kazakhstan after inheriting the nuclear warfare capable air force had to transform it into a conventional air force. It established Kazakhstan Air Defence Force (KADF) and Kazakhstan Air Force in 1998 to strengthen its air defence and air strike capability. Kazakhstan later initiated reforms in defence forces in 2001 to transform them into modern fighting forces by 2010. It acquired advanced SU-30SM multi-role fighters from Russia in 2015 to bridge technology gaps and enhance operational capability of its air force (KADF, 2019).

Kazakhstan examined the latest trends in defence forces philosophies, formulated doctorines and undertook review of organisational structure of its defence forces to adopt best practices. It published military doctrines of 1993, 2000, 2007 and 2011, which had evolved by taking into account external and internal security threats, global and regional developments, its priorities and aspirations to develop its defence forces and defence industry (McDermott, 2011).

The changes in doctrines indicated progressive transformation from Soviet-style defence forces to defence forces with Kazakh characteristic, which included adoption of some Western concepts and military structures.

In 2012, it formulated the Law on National Security, which banned the establishment of foreign military bases and transit of lethal equipment from Kazakhstan. The law reinforced its emphasis on independent defence and foreign policy. Its policy was that it would maintain distance from both Russia as well as the US, who were competing with each other to establish defence collaborations and military bases in CARs. Kazakhstan also made an endeavor for international outreach and started contributing to non-combat UN peacekeeping operations in 2007 and passed a law in 2015 to allow participation of Kazakh troops in UN peacekeeping missions.

Kyrgyzstan

Kyrgyzstan, the second Central Asian Republic and located in northeast of Central Asia with a population of 6 million and having one of the lowest GDP of USD 6.5 billion in 2016 faced political upheavals involving two regime changes between 1992 and 2016. Its defence forces were required to protect the country against terrorist threats, inter-ethnic disputes, protection of border with volatile Xinjiang region of China and political instability.

After becoming an independent nation, Kyrgyzstan established defence forces and police to counter external and internal security threats respectively. Kyrgyz defence forces having a strength of 20,000 personnel, a budget of USD 227 million budget (2016) and legacy Soviet and Russian equipment were ill-equipped to protect against internal and external threats (The World Bank, 2019). There was corruption in police while defence forces enjoying a less privileged position in the society did not attract the best talent. Its National Security Service responsible for protecting political elites came under scrutiny for corruption, siding with political leaders and compromising with the rule of the land.

Kyrgyzstan air force inherited Bishkek Aviation School and a small air force comprising MiG-21 interceptors, L-39 trainers and helicopters among other assets (Global Security, 2019). Poor maintenance of aviation assets, lack of training and economic challenges reduced offensive capability and existence of air force as a combat force. Its air force remained one of the smallest,

poorly manned and ill-equipped air force in the Central Asian region. Kyrgyzstan made little effort to develop combat-ready airforce. It swapped fighter aircraft and helicopters with Russia and Uzbekistan in exchange for defence equipment for land forces, surface to air missiles and training of its defence forces personnel. It depended on Russian air force elements positioned at Kant airbase to protect its airspace and for ground support operations.

The discord between Uzbek and Kyrgyz ethnicities and disparity in water resources remained potential challenges for Kyrgyz defence forces. The development of Kyrgyz armed forces as independent entities was a slow process and many organisational changes took place as reactions to crisis rather than being planned activities. Kyrygzstan despite establishing of Directorate of Border Guards lacked capability to protect its borders due to paucity of funds and resources. It had to depend upon Russian troops to guard Kyrgyz-China border.

The growth of its armed forces received less attention during the first decade; as a result, they were found ill-prepared when armed militants of IMU invaded Batken and Chon-Alay districts of the Osh region on Kyrgyz-Tajik border during the late 1990s and early 2000. Kyrgyzstan initiated reforms in defence forces in 2001; however, these reforms were put in the backburner after President Askar Akayev was overthrown on 24 March 2005. The incoming President Kurmanbek Bakiyev reshuffled defence forces but did not pursue defence reforms. After Bekiyev left the country on 15 April 2010, the interim government faced series of ethnic clashes while dealing with the transformation from Presidential to Parliamentary form of the government. The lack of professionalism in the military was again witnessed during the clashes between people of Uzbeks and Kyrgyz ethnicities in Osh in June 2010 (Marat, 2010).

The placing of General Staff of the armed forces directly under the President, promulgation of National Security Concept and Military doctrines in 2012 and 2013 respectively were aimed at bringing professionalism and strengthening control of the President. Kyrgyzstan's introduction of defence reforms, establishing of motorised infantry formation, air defence unit, mountain rifle unit and joining of joint defence mechanism of CIS and CSTO and joint exercises with other countries were aimed at enhancing the capabilities of its defence forces to protect its interests from external and internal threats.

Tajikistan

The third CAR of Tajikistan with a population of 8.7 million, one of the lowest GDP of USD 6.7 billion, having tough hilly terrain and being located next to turbulent Afghan-Pakistan region faced civil war, clan rivalry, religious fundamentalism and terrorism. Its small and ill-equipped defence forces lacked the necessary capability to protect the country against internal and external threats (Tajikistan President, 2018). However, its geostrategic location near Afghanistan-Pakistan region and its willingness to allow other countries in utilising its defence bases for staging and undertaking anti-terrorist operations made it an important player in the defence cooperation dynamics of the region as well as provided leverage to seek military and military-technical assistance.

Tajikistan's Defence Forces after their establishment in December 1992 had to fight a civil war in the country between 1992-1997. Tajikistan having experienced civil war established the State Border Defense Committee in 1997 for overseeing border management affairs and blocking trans border movement of criminals and terrorists operating from turbulent Afghanistan and preventing drug trade. Thereafter, it created National Guards to protect the President and the government against coups, threat from terrorists and powerful hostile clans. Tajikistan published its first Military Doctrine in 2005 that articulated its appreciation of security threats, approach to force development and roles of Tajikistan and multinational forces.

Tajik defence forces with manpower of 16300 in 2016 lacked equipment, trained manpower and organisation structures for facing terrorism and external security threats alone. Its air force was very small comprising a few Mi-8 transport helicopters, Mi-24 assault helicopters and a few L-39 trainer aircraft that were capable of providing air transportation, medical evacuation, search and rescue and limited fire support to anti-terrorist operations. It did not accord high priority to the development of the air force, which was an expensive proposition considering the limitations of resources (Tajikstan Air force, 2019).

Its meagre defence budget of USD 95.7 million in 2015 was inadequate for procuring defence equipment, recruiting and training the required number of defence forces personnel to protect the country (Gorenburg Dmitry 2015). Tajikistan was predominantly dependent on Russia for addressing its security needs, who under an inter-government agreement had stationed 7000 soldiers in Tajikistan to provide security till 2042.

Turkmenistan

The fourth CAR, Turkmenistan with a population of 6.2 million, GDP of USD 36.1 billion (in 2016) had established independent armed forces in January 1992 (TWB Turkmenistan, 2018). It signed a treaty with Russia in July 1992 in which Russia acted as guarantor of Turkmenistan's security and retained control over its armed force under a joint command till its armed forces became self-sufficient. At the same time, its officers started getting training under the NATO's Partnership for Peace initiative from May 1994 onwards. It also signed an agreement with Russia, Kazakhstan and Azerbaijan in March 1992 and established Caspian Sea flotilla consisting of small coastal defence force to prevent smuggling through the Caspian Sea. In 2013, it made its naval arm an independent entity due to growing importance of offshore assets and need for protecting its coastal boundaries. It had also set up naval bases, procured naval ships and established naval officers training academy to strengthen its naval arm.

Its defence forces comprising land, air, air defence, naval forces, and State Border Service (SBS) had a strength of 41,500 in 2016. Its land forces were equipped with Soviet-era military equipment including T-72 tanks, BTR and BMP Infantry Fighting Vehicles (IFVs). Its air force inherited Soviet-era fighters, attack and utility helicopters; however, it lacked transport fleet and strategic airlift capability. Also, it struggled to maintain a large inventory of defence equipment as its defence budget allocation (of USD 210 million in 2012) was inadequate and its personnel lacked the necessary expertise to maintain them (ARG, 2015).

Turkmenistan’s declaration of 'permanent neutrality' in 1995 changed its approach to defence cooperation. It reviewed Russia-Turkmenistan defence cooperation treaty, which led to a phased reduction in strength of Russian troops and withdrawal by the end of 1999. Thereafter, it stayed away from joining military groups or establishing binding military cooperation with regional and global military powers. The discontinuation of engagement of its newly formed defence forces with other defence forces had an adverse impact on professional military education, which slowed down their professional growth. Its officers were predominantly trained in Russia and Turkey due to shortage of quality training institutions in the country; however, it had declined the offer to train its officers in war colleges of Pakistan military. Overall, the lack of reforms in defence forces and lack of quality training of defence personnel remained its key concerns. It also diversified its equipment procurement in due course with the acquisition of

Molniya class missile corvettes and naval vessels from Turkey, and long-range FD-2000 air defence missile system and Pterodactyl UAVs from China in February 2015 (ARG, 2016).

The adoption of permanent neutrality reduced its attractiveness to global powers, who were looking forward to establish military cooperation and utilise military bases of Central Asian Republics. On the other hand, its decision to adopt permanent neutrality increased responsibility of its defence forces as they had to protect the country from internal and external threats without the protection offered by multi-lateral organisations. However, absence of domestic defence manufacturing industry and lack of holistic defence institutions made it dependent on other countries for defence equipment.

Uzbekistan

The fifth CAR, Uzbekistan with a population of 32 million and a GDP of USD 67.1 billion had a modest economy. Uzbekistan shared border with five countries and protecting long and porous borders including with volatile Afghanistan, Kyrgyzstan and Tajikistan posed a tough challenge for its defence forces. Islamic Movement of Uzbekistan (IMU) and other terror groups, border disputes and clan wars added to its challenges.

Uzbekistan established independent defence forces on 14 January 1992 by taking control of the Soviet-era air and land forces. Its defence forces comprising 68,000 personnel a defence budget of USD 2 billion in 2016 were the second strongest defence forces among the five Central Asian Republics after Kazakhstan. Uzbekistan like other CARs was initially more focused on building capabilities against terrorism and internal threats than external aggression. However, the publishing of National Security Concept Law in 1997, creation of National Security Services and re-organisation of defence forces for increased mobility indicated re-orientation of its defence forces against external threats as well as for undertaking counter-insurgency and counter-terrorism operations. Training and professionalism among the defence forces was an area of concern and it signed an agreement with Russia in 2014 for training 3000 Uzbek defence officers in Russian military training institutes.

Uzbekistan did not have land boundary with Russia and it followed an independent defence cooperation policy. It looked beyond Russia for acquiring defence equipment, especially from the US. However, Uzbekistan's deterioration of relations with the US in 2004 and re-

establishing of relations in 2012 restricted their defence cooperation to provision of low technology equipment by the US. This was apparent when the US refused to allow South Korea to supply 12 T-50 fighter[26] trainer aircraft having American aero-engines to Uzbekistan in a USD 400 million deal in October 2015 (Uz Daily, 2019).

The ups and downs in the US - Uzbekistan relations created space for China to make inroads and Russia recapturing the lost grounds in the domain of defence cooperation. China started filling the vacuum and expanded defence technical cooperation. China supplied air defence missile system and UAV to Uzbekistan in 2015 in a barter arrangement to offset China's natural gas import bills. Shavkat M Mirziyovev on taking over as President of Uzbekistan after the death of Islam Karimov in 2016 instituted changes in defence forces and defence industrial cooperation with regional and international players. He took measures to reach out to neighbouring CARs, re-establish defence cooperation with Russia as well as enhance defence cooperation with other countries. Under the revised defence engagement policy, Uzbekistan signed Military-Technical cooperation agreement with Russia in 2016 for filling defence technology and defence forces training gaps.

As a whole, political instability, tough terrain, porous border, terrorism, clan wars, drug trade, inter-state disputes, absence of holistic military institutions and disintegration of defence industrial ecosystem were some of the challenges faced by the five CARs. However, these challenges and threats were not uniform for all the CARs. The Ferghana valley joining Uzbekistan, Tajikistan and Kyrgyzstan becoming a sanctuary and transit base for terrorist groups kept their defence forces engaged. The Central Asian terrorist groups receiving the patronage of the Taliban, other terror groups and intelligence agencies especially in the Afghanistan-Pakistan region added to the challenges of defence forces of CARs.

After becoming independent nations, the five CARs built organisational structures and focussed on improving training, equipping defence forces and establishing collaborations to protect their interests. Amongst the CARs, defence forces of Tajikistan and Kyrgyzstan remained weak and relatively ill-equipped to address their internal and external threats. Kyrgyzstan and Tajikistan's willingness to allow the use of their military bases, erstwhile Soviet-era training and testing facilities and establishing mutually beneficial defence cooperation in certain specific areas helped them in the acquisition of defence equipment and establishing defence cooperation

[26] The US aviation company, Lockheed Martin is a partner in the T-50 aircraft manufacturing.

with other countries. Turkmenistan with the adoption of permanent neutrality placed itself in a different league and resorted to acquisition of defence equipment from multiple sources, and avoided being seen as aligned to a particular big power or the multilateral organisation.

Defence Industries of CARs

One of the aims of this study was to examine cooperation between the defence industries of India and five CARs. The remnants of the Soviet defence industry inherited by CARs initially appeared promising including to countries like India. However, a closer look at defence industrial capabilities of CARs was needed to understand the potential for their collaborations. Therefore, this study made an endeavor to examine capabilities and limitations of defence industries of five CARs. Soviet Union had holistic defence industry ecosystem and it was developing and manufacturing defence equipment for own defence forces as well as for Warsaw Pact and other allies.

The break up of Soviet Union led to disintegration and dispersion of its defence industry among the newly formed states. Soviet-era centralised planning system disappeared and newly formed CARs lacked holistic ecosystem. The survival of their defence industry was dependent on actions of the other players especially Russia. Russia inherited about 80 % of Soviet defence industry enterprise comprising research, design, and manufacturing entities; however, its defence equipment manufacturing dropped to 15-30 % of the Soviet period. Russia armed with the knowledge of 'why' aspects of defence products reviewed its approach and took measures to reduce import of systems and sub-systems from former Soviet states. This adversely impacted viability of defence industries of CARs, which almost came to stand still with the disruption of the product supply chains (Kazakh Military, 2019).

Amongst the five CARs, Kazakhstan having inherited a large portion of Soviet-era defence industrial eco-system was better equipped to rebuild defence industry. There were about 50 military-industrial units that manufactured naval equipment, weapons for tanks, infantry fighting vehicles, small arms, missile systems, components of missile defence systems, torpedoes, anti-torpedo technology, radar stations and radio-electronic equipment for aviation. Overall it accounted for approximately 11 % of total military equipment being produced by the Soviet Union. It inherited nuclear testing site at Semipalatinsk, missile-testing site at Baikonur

cosmodrome, air-defence and missile-defence system testing site at Sary-Shagan and biological weapons testing site at Renaissance Island in the Aral Sea during the Soviet Era. However, Kazakhstan did not have holistic defence industrial ecosystem to manufacture defence equipment independently.

After becoming an independent nation, Kazakhstan made efforts to revive its defence industrial complexes by developing civil and military products, systems and sub-systems with limited success. Kazakhstan signed a treaty with Russia in 1995 to enhance defence cooperation between them while at the same time its defence industry faced competition from Russia, which retained edge over Kazakhstan in supplying spares to erstwhile Soviet clients. Absence of holistic defence industrial ecosystem and limited availability of funds adversely impacted the chances of revival its defence, aerospace and civil industry.

To overcome challenges of obsolescence of defence equipment, Kazakhstan followed a three-pronged approach to build up defence industrial capability that involved, firstly, up-gradation and life enhancement of existing defence equipment (Soviet era) and acquisition of defence equipment from Russia (including in exchange for renting of Baikonur Cosmodrome); secondly, procurement of defence equipment from countries other than Russia, and thirdly, building domestic military-industrial complexes through research and development, collaborations, transfer of technology and joint ventures. Out of these, building a robust domestic military-industrial complex was a priority area of its policy to achieve self-reliance in defence equipment manufacturing.

In 2007, Kazakhstan launched the state program to develop defence–industrial complex. To improve the quality of its defence products, Kazakhstan outlined the concept for the development of weapons and military equipment at par with "the best foreign models" in 2010. It continued to focus on developing its defence industry. Its defence doctrine of 2011 emphasised need for building its defence industry, promoting innovation, establishing mutually beneficial military-technical collaboration with foreign partners and improving quality of indigenously produced defence equipment. It leveraged procurement of defence equipment to strengthen its domestic defence industry. It established national procurement office and followed a unified military-technological policy to maintain synergy among procurement, joint ventures and domestic production. It also formulated its National Security Strategy in the same year with a focus on strengthening its domestic capability and reducing dependence on foreign suppliers

including Russia. Its Law on National Security of 2012 resulted in placing special focus on the development of cybersecurity and Information Warfare capabilities to strengthen offensive and defence capabilities in these emerging domains.

Kazakhstan continuing with reforms of its defence industry allowed establishing of joint ventures in the country in 2013 for producing communication equipment, opto-electronics, aircraft, helicopters and UAVs. Kazakhstan collaborated with foreign OEMs and sought transfer of technology to fill technology gaps as well as develop indigenous capability to undertake Maintainance, Repair and Overhaul (MRO) of defence products within the country. It achieved limited success in reviving domestic industry but the effort was being made to move forward in domestic manufacturing. "Kazakhstan-2050 Strategy" designated defence and aerospace industries as one of the top priority areas for elevating the country among the top 30 developed nations.

The merging of Samruk-Kazyna group of companies in the Kazakhstan Engineering company in 2006 and transfer of its management to a trust in 2010 was aimed at improving efficiency and productivity to strengthen domestic defence manufacturing capabilities. Its 24 manufacturing enterprises achieved civil-military integration and produced variety of civil, military and dual-use products. Kazakhstan government's endeavours to build its defence and aerospace industry were not without challenges as indigenously manufactured defence products faced economic viability due to limited orders from its defence forces. The company after making low to moderate profits during the preceding four years incurred a loss of 8.266 billion KZT (Approx. USD24.09 million) in 2015. Its endeavours like introduction of free-floating exchange rates for KZT, raising money by issuing bonds and diversification into manufacturing of military and civilian products failed to make them competitive entities due to various challenges and drawbacks in their implementation. Also, challenges from competing Russia, declining domestic orders, lack of orders and absence of holistic defence industrial ecosystem impacted their economic viability.

The introduction of the ‘Law on Offsets’ in 2015 was an effort to leverage procurement of defence equipment from foreign OEMs for strengthening its domestic defence industry.

Kazakhstan was the only CARs to conduct biannual Kazakhstan Defence Expo (KADEX) since 2010 for diversifying defence procurement, establishing collaborations and joint ventures, and exporting its domestic defence products. KADEX indicated Kazakhstan's aspirations to look beyond Russia for procuring defence equipment, which could provide Indian companies an opportunity to engage and collaborate with stakeholders in Kazakhstan.

Kazakhstan, on one hand maintained close relation with Russia while on the other it pursued collaborations and joint ventures with the US, Europe and other defence manufacturers to fill technology gaps, e.g. Kazakhstan Engineering collaborated with Thales for radio, radar and fire equipment, Airbus of France for helicopters, Indra Systemas of Spain for radars, ASELSAN of Turkey, Paramount Group of South Africa and variety of military products. Its endeavours in reviving its military industry and collaboration with international partners enabled its military-ndustrial complexes to assemble helicopters, manufacture military optical equipment, radars and radio equipment, naval ships, repair of aviation systems and armoured vehicles. Its defence relations with Russian did not become a hurdle in establishing defence industrial relations with other defence manufacturers.

Kazakhstan viewed military equipment manufacturing as an important pillar of its industrial development to expand scope and scale of military equipment manufacturing by modernising them through Offsets, collaborations and transfer of technology. It was looking for avenues to export its products, which is an opportunity for Indian defence industry to engage and establish mutually beneficial cooperations.

The second CAR, Kyrgyzstan inherited torpedo manufacturing factory and the Issyk-Kul lake, which was ideally suited for testing of torpedoes. Kyrgyzstan establishing JSC Ulan in 1992 to operate torpedo-testing site and JSC Dastan Engineering Company to manufacture VA-111 Shkval torpedos, and other systems struggled to achieve desired results. The production facility of VA11 Shkval torpedo, a Soviet-era supercavitating torpedo capable of achieving 200 Knots that was meant to take on the US aircraft carriers could not survive due to various challenges and limitations of its domestic industry. Lack of research and development laboratories, holistic manufacturing chain, inability to keep pace with technological

advancements and reduced demand of its products in international market added to its challenges.

Kyrgyzstan realising challenges in reviving its defence industry established state enterprise "Kyrgyzkural" in 2009 to facilitate export, import and re-export of military products. Kyrgyzkural became the single point of contact for research and development, manufacturing, repair, maintenance, modernisation and procurement of defence equipment, and establishing military-technical cooperation with foreign companies. Kyrgyzstan realising the challenges in transforming its defence industry into viable entities established the state enterprise "Asker Kurulush" in 2013 to re-orientate its defence industry into producing civil-military products.

Russia's concerns about the US presence in Kyrgyzstan, apprehensions among Kyrgyz leaders about undue dependence on Russia and Kyrgyzstan's endeavours to leverage the US-Russia competition for economic gains adversely impacted the chances of revival of its major defence industrial entity Dastan Engineering. Absence of defence industrial ecosystem and paucity of resources added to its challenges. Dastan Engineering privatisation in 2013 did not help in its revival. Also, deterioration of relations with Ukraine made Russia revisit its policy of establishing defence industrial collaborations with erstwhile Soviet states and it focused on filling defence industry gaps by manufacturing complete products within the country. As a result, Russia's interest in Dastan Engineering waned and Kyrgyzstan's effort to sell Dastan Engineering shares to Russia to write off its debt of USD 180 million also did not materialise. Overall, its defence industry remained insignificant with some potential to produce, maintain and test defence equipment within the country. The two CARs of Tajikistan and Turkmenistan did not inherit significant defence industry from the Soviet Union and they did not make special endeavor to establish defence industry during the period of the study.

Uzbekistan inherited one of the largest military-industrial complexes in Central Asia during the Soviet era including Chkalov Tashkent Aircraft Association (TAPiCH) – the largest transport aircraft manufacturing plant in the erstwhile USSR. Uzbekistan established defence collaboration with the US, European and other Western countries to revive its defence and aircraft industry. It upgraded Soviet-era defence equipment with Western powerplants, navigation and other sensors to fill technology gaps and upgrade them. It upgraded IL-76MF by fitting Snecma engine from French company and IL-114 with Canadian engines. It also sold Russian era 20 IL-76 heavy-lift aircraft to China and 15 IL-114-100 transport aircraft to United

Arab Emirates and China. However, differences with the Western countries on human rights issues disrupted its defence industrial cooperation with the Western countries. In this process, it moved away from Russia that was initially planning to take over 49 % stake and provide technical support to revive TAPiCH. However, fluctuation in relations with Russia contributed to its failure to revive TAPiCH with Russian support. The lack of holistic ecosystem, reduction in demand and shortage of qualified staff led to its closure in 2015. The trajectory of Uzbekistan defence industry was turbulent without much success in reviving its Soviet-era defence industry.

The absence of holistic defence industrial eco-system adversely impacted the domestic defence industry of the CARs Lack of infrastructure, limited capability to undertake R&D, non-availability of holistic ecosystem and decline in economic viability of their products adversely impacted the efficacy of the survival of defence industries of the five CARs. Poor economic conditions limited their options for re-orientating, operationalising and sustaining their respective defence industries. The non-fructification of CARs-Russia defence cooperation and Russia inheriting most of the design and development capabilities after the disintegration of Soviet Union eliminated chances of survival of Soviet-era defence industry in CARs.

Kazakhstan and Uzbekistan made endeavors for reviving their defence industries with limited suceess. Kazakhstan was the more pragmatic as it managed its relations with Russia and Western countries better than Uzbekistan, which helped it in the revival and reorientation of its defence industry to some extent. It also focused on building domestic defence manufacturing and MRO capability as well as leveraged procurements for establishing joint ventures and collaborations with leading defence manufacturers to fill technology gaps. Uzbekistan's endeavours to revive its defence industry by establishing collaborations with Western nations failed to maintain its momentum due to fluctuations in its relations with Russia, CARs and the West. Kyrgyzstan's did not succeed in reviving torpedo testing sites and torpedo manufacturing facilities while Turkmenistan and Tajikistan neither inherited nor made endeavour to build domestic defence industry.

CARs Defence Cooperation with External Actors and Multilateral Organisations

During the early 1990s, several countries made an endeavor to establish defence cooperation with CARs, however, three major powers, i.e. China, Russia and the US played an important role in defence dynamics of the region. The CARs established defence cooperation with these three players through bilateral as well as through multilateral organisations to overcome limitations of small economies, lack of military institutions, non–availability of trained military personnel and paucity of resources to protect their boundaries and counter the threat of terrorism. After the disintegration of Soviet Union, Russia made endeavours to collaborate with CARs to establish defence cooperation and revive their defence industries while China, the US and others were trying to get a foothold in the region by establishing defence and defence industrial partnerships. The CARs had established varying degree of defence collaborations with China, Russia, the US and other nations

China and Russia spearheaded the formation of multilateral organisations-SCO and Collective Security Treaty (CST) (later renamed as CSTO) respectively to strengthen defence cooperation and counter the threat of terrorism. The CST immediately faced action when CIS Collective Peacekeeping Force comprising military personnel of Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan was deployed in civil-war torn Tajikistan on 24 September 1993 along the Tajikistan-Afghanistan border. CIS countries strengthened defence cooperation with the establishing of integrated air defence network on 10 February 1995. The CSTO later started sending its troops for UN missions and conducted joint training exercises covering wide-ranging scenarios including anti-terror, information security, air defence, etc. The CSTO adopted Collective Security Strategy in 2016 that was valid up to 2025. It also established joint military force that had grown into a 20,000 strong Collective Rapid Reaction Forces (CRRF) to address common threats especially terrorism.

Uzbekistan was an unpredictable country in the defence cooperation dynamics among these three powers. It shared border with turbulent Afghanistan but not with two major regional powers, i.e. Russia and China. After the 9/11 terrorist attacks on the US, Uzbekistan allowing the US and NATO to use Termez and the Karashi-Khanabad (K2) military airfields for its war on terror in Afghanistan brought them closer. The newly formed Uzbekistan became a preferred country in Central Asia for the US to establish defence cooperation. On the other hand, its

bilateral relations with Russia dampened when Uzbekistan joined the North Atlantic Treaty Organisation's (NATO's) Partnership for Peace (PfP) program in 1994.

The US in addition to establishing bilateral mechanisms with CARs, hosted multinational training exercises on HADR and counter-terrorism contingencies. The US Military's Atlantic and later Central Command sponsored CENTRASBAT[27] Exercise for peacekeeping and humanitarian missions since 1997. This battalion remained a ceremonial entity, which was never used during operations including during IMU terrorist attacks on Tajikistan in 1999. The lack of interest among stakeholders from Central Asia and the US, led to disbanding of CENTRASBAT battalion in 1999. The US introduced "Regional Cooperation" Joint training exercise after the September 2001 terrorist attack in the US. It was a tabletop exercise on counter-terrorism, border security and peacekeeping operations with a focus on Central Asia. Pakistan along with Kazakhstan, Kyrgyzstan, Tajikistan and the US participated in the Regional Cooperation Exercise that was sponsored by the US CENTCOM.

However, Uzbekistan's bonhomie with the US did not last long. After the criticism of its poor human rights records in 2005, Uzbek government asked the US to vacate its Karashi-Khanabad (K2) airbase. Thereafter, Uzbekistan's relations with Russia and China improved and it joined SCO. However, with improvement in relations with the West in 2007, it followed go-slow policy on participation in CSTO exercises and later suspended its membership of CSTO in 2012. The pattern of Uzbekistan's engagement with regional and global powers indicated tilt towards Western countries, especially the US; however, its overall cooperation with the US remained at a low level.

China initially maintained a low profile in bilateral defence cooperation; however, it partnered with Russia in establishing multilateral defence cooperation with CARs. China along with Russia, Kazakhstan, Tajikistan and Kyrgyzstan formed "Shanghai Five" in 1996. In 2001, six countries comprising China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan renamed "Shanghai Five" to create SCO with an aim to strengthen cooperation in trade, economy, defence, international and regional issues of common concern. The dedicated Anti-Terrorism force located in Tashkent, Uzbekistan indicated its focus on developing joint capability to counter the threat of international terrorism. SCO was established due to the

[27] Joint Central Asian Battalion (CENTRASBAT) comprised of military personnel of Kazakhstan, Kyrgyzstan and Uzbekistan and Tajikistan.

initiative of China whose underlying aim was also to solicit support of CARs in ensuring that Uighur movement did not get political and other support from member countries and minimise influence of the US.

SCO not only brought three-member of Russia led CSTO, i.e Tajikistan, Kyrgyzstan and Kazakhstan from Central Asia, but also unpredictable Uzbekistan, who followed an independent defence cooperation policy. SCO bringing Russia and four Central Asian republics including Uzbekistan on one platform indicated increasing influence and acceptability of China in the region. However, on the other hand, it followed a flexible approach by acceding to the demand of unpredictable Uzbekistan on hosting the Regional Anti-Terrorism Centre in 2003. This can be viewed as China's pragmatism as well as its weakness to accommodate others to ensure its acceptability of SCO among its members.

India joined SCO towards the end of the study, which increased its scope for enhancing defence cooperation through multilateral organisations. The convergence of interests due to terrorism and other unconventional threats created enabling environment for establishing defence cooperation between India and CARs through multilateral organisations like the SCO and CSTO. This led to their defence forces participating in the joint training exercises between India and five CARs on cooperation on terrorism indicated their emphasis on addressing this common menace. During the same period, China, the US and other nations made endeavours to establish defence cooperation with CARs in the backyard of Russia.

India established defence and counter-terrorism cooperation with CARs through multilateral SCO; however, it stayed away from Russia led CSTO. The reason was India joining SCO and not CSTO was its flexible charter. The CSTO on other hand was more suited to regional requirements having binding obligations to support its members militarily including during conflicts. While deliberating on defence cooperation dynamics among them, the pattern of defence cooperation of CARs with other countries was examined for drawing parallels and ascertaining the level of defence cooperation between India and five CARs vis-à-vis other players. Multilateral organisations like CSTO and SCO played a key role in establishing and strengthening and enhancing the scope of defence cooperation of CARs with external players.

The CARs defence cooperation with external actors through bilateral and multilateral organisations as discussed above was examined in the third chapter of the study. Terrorism, drugs, clan wars and other threats contributed to CARs establishing significant level of defence

cooperation through multilateral organisaations like CSTO and SCO. Thus the hypothesis that convergence due to terrorism and other unconventional threats stimulated establishing of defence cooperation among various stakeholders through multilateral organisations was verified in this chapter.

Defence Cooperation Between India and CARs

India and five CARs appeared to be natural partners for establishing defence cooperation comprising cooperation between their defence forces and defence industries due to centuries-old historical, cultural and trade relations and lack of competing interests. India's relations with CARs were cordial during the Soviet era. After the disintegration of the Soviet Union in 1991, the five CARs were important for India due to their geostrategic location and being inheritors of Soviet-era defence industrial enterprises..

The newly formed five CARs facing multiple challenges including absence of military institutions, lack of trained manpower, paucity of resources, clan rivalries, border disputes and threat of terrorism especially from volatile Af-Pak region were looking for partnerships. On the other hand, Indian defence forces possessing experience of fighting wars with China and Pakistan, guarding large and varied borders, countering Naxalism, terrorism and other internal security challenges possessed complementary capabilities and experience that could be shared with the defence forces of CARs.

The CARs' were also looking for defence industrial collaborations to re-orientate remnants of Soviet0-era defence industrial complexes while India was looking to fill defence industrial technology gaps as well as export its defence industrial products. The study started with the premise that complementary capabilities existed for establishing cooperation between defence forces and defence industries of India and CARs. However, India needed to factor in concerns of Russia while establishing defence cooperation with CARs as Russia was India's long time friend and major defence equipment supplier. Also, absence of land connectivity between India and CARs and the unwillingness of Pakistan to provide road connectivity added to its Challenges.

An endeavour was made to ascertain the extent of complementarity of defence forces and defence industries of India and five CARs before examining level of defence cooperation between their defence forces and defence industries.

Cooperation between Defence Forces of India and CARs

Indian defence forces possessed all the three elements of defence forces, i.e. Army, Navy, and Air Force to protect its air, land, maritime and space boundaries. Indian defence forces possessed multi-domain experience of dealing with insurgency, terrorism and internal security challenges as well as having fought wars with Pakistan and China. The experience of Indian defence forces in guarding borders in varied terrain comprising deserts, plains, hills and coastal areas and facing internal security challenges was relevant for the defence forces of CARs especially Kazakhstan, Turkmenistan and Uzbekistan guarding plain and desert areas, and Kyrgyzstan, Tajikistan and Uzbekistan guarding hilly terrain. The challenges posed by terrorism and potential for cooperation between defence forces and defence industries had created favourable conditions for establishing mutually beneficial defence cooperation among them. Therefore, India had all the credentials for establishing defence cooperation with the CARs. However, there was a need to examine the potential and extent of defence cooperation between India and five CARs towards which an endeavour was made in this study

In 2016, the defence forces of India having a strength of about 2.9 million were much larger than 70,500 of Kazakhstan, 68000 of Uzbekistan, 41500 of Turkmenistan, 20,400 of Kyrgyzstan and 16,300 of Tajikistan. Amongst the CARs, Kazakh defence forces had to protect one of the largest borders while terrorist organisaation like IMU was one of the key concerns of the Uzbek defence forces. Turkmenistan defence forces had to shoulder higher responsibility of protecting the country alone due to its policy of 'Permanent Neutrality'. Kyrgyzstan and Tajikistan due to small size of their defence forces and lack of resources established bilateral defence cooperation and joined collective security arrangement to counter external and internal threats. Against this background, India and CARs established cooperation between their defence forces comprising, defence exercises, training, infrastructure development and equipping that are deliberated in the succeeding section.

India-Kazakhstan. India-Kazakhstan established working group for cooperation in defence in 1996; however, their defence engagements remained limited to isolated exchange visits of experts to each other's think tanks in 1996, 2000, 2001 and 2006. The signing of India-Kazakhstan Joint Working Group (JWG) on international terrorism in 2002 led to initiation of bilateral visits of senior functionaries and military personnel, Indian military conducting training courses for Kazakh defence forces personnel and joint mountaineering expedition, which brought some forward movement in defence cooperation between the two nations. The high point of political engagement with Kazakhstan President Nazarbayev attending India's Republic Day celebrations as Chief Guest in January 2009 provided a much-needed stimulus for enhancing level of cooperation in multiple domains including defence.

India-Kazakhstan signed strategic partnership treaty, agreement for cooperation in Space and 'Extradition Treaty' for extradition of wanted terrorists and criminals in 2009. There was a slow but steady increase in military to military engagement between the two nations. The bilateral defence engagement between India and Kazakhstan was negligible during the period of the study; however, it witnessed significant increase after 2016 with the commencement of joint military exercise PRABAL DOSTYK in 2017. Thereafter, 120 Kazakh troops joining Indian peacekeeping Battalion as part of United Nations Interim Force in Lebanon (UNIFIL) in November 2018 indicated forward movement in bilateral cooperation between their defence forces. Overall cooperation between their defence forces remained low during the period of study and scope exists for enhancing defence cooperation to a higher level.

India-Kyrgyzstan. India and Kyrgyzstan appeared to be natural allies considering their deep cultural and civilisational affiliations and lack of conflicting interests; however, level of engagement between defence forces of India and Kyrgyzstan remained at low level in the first decade. The visit of Indian Defence Minister, George Fernandez to Krygyzstan in 2003 provided a stimulus for establishing defence cooperation. The trajectory of defence cooperation expanded with the establishing of India-Kyrgyzstan Mountain Bio-Medical Research Centre at Bishkek in 2011, Usenbekov IT Centre, bilateral visits of defence forces personnel, and Indian Army training Kyrgyzstan Military personnel for UN Peace Keeping, anti-terrorist and commando operations. The signing of defence cooperation agreements and enhanced scope and scale of

bilateral defence cooperation covered defence, military education, training, joint exercises, exchange of information and experience, military instructors and observers, etc.

Indian and Kyrgyz militaries after participating in first joint training exercise named 'Khanjar' in 2011 was discontinued for the next four years before reviving in 2015 and making it an annual event. The two countries also initiated joint mountaineering expeditions as part of confidence-building measures since 2011. India-Kyrgyzstan-2015 agreement on defence cooperation broadened engagement to the field of defence technology**,** which was missing till then. India also helped Kyrgyzstan in setting up 'Joint Mountain Training Centre' in 2016 to provide instructions and training to personnel of Armed Forces of Kyrgyzstan and both countries started undertaking Joint Mountain training exercises. India-Kyrgyz youth exchange between National Cadets Corps of India and Military Lyceum of Kyrgyz Republic[28] in 2016 not only helped two countries in building bridges among the defence forces but also created brand ambassadors of friendship in society and defence forces. Overall, cooperation between defence forces of India and Kyrgyz military was increasing by the end of 2016.

India-Tajikistan. Tajikistan occupied a prominent position in India's security calculus due to its geo-strategic location in the region and close proximity to the volatile Afghanistan-Pakistan region. Tajikistan's defence forces were required to protect 1400 Km long border especially the one with volatile Afghanistan, which posed threat to its stability. Terrorists trained and equipped in the Afghanistan-Pakistan region posed threat to both Tajikistan and India. Tajikistan had large porous borders and its newly formed military could gain from the expertise of the Indian defence forces possessing long experience in dealing with externally abetted terrorist activities and insurgency. India facilitated the capability building of defence forces of Tajikistan to help them protect their borders and fight terrorism, which also posed threat to India.

India and Tajikistan protocol of cooperation of 1993 and joint declaration of 1995 laid the foundation for establishing cooperation in the defence domain. India's military assistance to Tajikistan started with the setting up of the field hospital towards the mid-1990s in Farkhor airbase that is located 100 km South-East of the capital Dushanbe. However, India closing the hospital when NATO established the ISAF mission was viewed as its strategic blunder. India constructed runway at Khojendt Airport in Tajikistan in September 2000 to facilitate air

[28] National Cadets Corps of India and Military Lyceum of Kyrgyz Republic are youth wings of their armed forces that impart elementary military training to school and college students.

operations of Tajik defence forces. Their bilateral defence cooperation was strengthened with the signing of MoU on Technical Cooperation with Tajikistan in May 2001; 'Friendship and Cooperation' treaty, 'Extradition Treaty' and establishing of Joint Working Group for combating International terrorism in January 2005. The second important aspect of India Tajik defence cooperation was capacity building of Tajik defence forces and an agreement on India training Tajik officers was signed in August 2006 and number of slots for training Tajikistan officers under ITEC program was increased to 150 in September 2012. It also built a hospital at Qurgen Teppaand to develop health facilities in Tajikistan defence forces.

India initiated a project in 2003 for renovating the disused Ayni airbase (also known as Gissar) that was located 15 Km west of Tajik capital Dushanbe to provide air mobility to Tajik defence force, improve their logistics and medical support capability along Tajikistan-Afghanistan border for fighting terrorism. The project was completed in 2007 and the base was officially operationalised in 2010. India offered to train Tajik air force personnel as well as help them restore and maintain Soviet-era aircraft and helicopters for operational use; however, it was not an easy task as aircraft operations required extensive spare and logistics support. The feasibility of acquiring spares from Russia while Indian technicians providing technical support to train Tajik air force personnel was examined. The project did not fructify due to reservations of Russia. Later, India, Tajikistan and Russia signed a trilateral agreement to operate this base on a rotational basis to help Tajikistan operationalise this base.

Tajikistan did not share border with Pakistan as their borders were separated by narrow Wakhan corridor of Afghanistan. However, Pakistan viewed India-Tajikistan cooperation with suspicion and even made an effort to dissuade Tajikistan from establishing defence cooperation with India. It even offered to renovate two disused Tajik airbases and train its military personnel to discourage Tajikistan from offering its airbase to India.

India positioned training team in Tajikistan to teach English and prepare Tajik military personnel for undergoing courses in IAF training institutions. It also supplied one Mi-8 helicopter and six military transport trucks in 2013. Their Joint Working Group monitored progress, challenges and other issues concerning defence cooperation. Tajikistan supported India’s membership to the SCO. The SCO provided India a platform for strengthening economic and defence engagement with CARs including Tajikistan.

India setting up of field hospital at Farkhor airbase, constructing runway at Khojent airbase, renovating Ayni airbase in 2003, signing Extradition Treaty, establishing Joint Working Group on combating terrorism, training Tajik defence officers and supplying helicopter and other equipment indicates broad range of defence cooperation between the two countries. The defence engagement between India and Tajikistan especially in capacity building of Tajik defence forces had grown during the period of study.

India-Turkmenistan. India being a founder member of the Non-Aligned Movement (NAM) and Turkmenistan adopting the principle of 'Permanent Neutrality' shared common values that dictated the trajectory of their defence relations with other countries. The common threat of terrorism, aspirations for economic and strategic independence; and potential for establishing cooperation among their defence forces and defence industries, and absence of conflicting interests provided common threads for building defence relations. However, shared interests did not lead to elevation of defence relations to a higher level and lack of connectivity added to challenges.

The defence cooperation between India and Turkmenistan was neglected in the first two decades. Some forward movement was witnessed after 2013 that involved visits of senior functionaries of Turkmenistan Defence forces and India, and singing of agreement in 2016 in which India agreed to train Turkmen defence personnel. As a whole, defence cooperation between the two nations during the period of study remained at low-level. During this period, absence of domestic defence industry necessitated that Turkmenistan acquired defence equipment from foreign countries, which indicates an opportunity for Indian defence industry to establish defence cooperation. However, India would need to factor in, Turkmenistan's increasing economic and defence cooperation with China.

India-Uzbekistan. Uzbekistan defence forces inherited reasonably well-established structures and manpower from Soviet Union. However, being a newly formed country, it needed to re-orientate its defence forces organisational structures, replace ageing defence equipment and formulate training patterns. The cooperation between defence forces of India and Uzbekistan was insignificant during the 1990s. To bridge this gap, a delegation from Uzbekistan visited India in 2000 to identify areas for bilateral cooperation and establish a framework for meaningful defence engagement. India-Uzbekistan established cooperation in counter-terrorism as they singed 'Extradition Treaty' in May 2000 and later established Joint Working Group on Combating

International Terrorism in 2003. Thereafter, focus shifted on establishing and strengthening of defence cooperation with the signing of agreement on cooperation in Military and Military Technical areas in 2005, visit of Chief of Air Staff, Indian Air Force to Tashkent in 2006, training of Uzbek officers and contingent of Uzbek Special Forces by Indian Army and signing of "Strategic Partnership" in May 2011. The Shanghai Cooperation Organisation (SCO) provided a framework for enhancing cooperation with India and Uzbekistan with the signing of the agreement on strengthening cooperation in defence, security, cybersecurity, exchanges of experts and establish engagement in 2016. The patterns of Uzbekistan's defence cooperation with China, Russia and the US through bilateral and multilateral forums indicated its aspirations for establishing favourable defence cooperation trajectory. Overall, cooperation between defence forces of two nations remained at low-level and scope existed for enhancing it to a higher level considering shared interests.

As a whole, the cooperation between defence forces of India and five CARs was improving. India provided training to defence forces personnel of five CARs under the ITEC program. The program covered training on variety of subjects including on security and strategic studies, defence management, marine and aeronautical engineering, logistics, management, marine hydrography and counter-insurgency. The defence forces officers having different seniorities of friendly countries were trained in Indian defence tri-Services institutions and Service-specific training institutions.

The defence cooperation remained at low-level especially during the first decade. It level of cooperation between their defence forces expanded to countering insurgency and counter-terrorism operations training as well as the conduct of joint exercises. There was insignificant cooperation on coastal security; however, Kazakhstan and Turkmenistan bordering Caspian Sea could collaborate with Indian Navy and Coast Guard and share experiences on guarding maritime borders against smuggling of contraband items as well as to counter aggression from the Caspian Sea.

India-CARs Defence Industrial Cooperation

Indian defence forces had a large inventory of Soviet-era defence equipment. The breakdown of USSR necessitated that India established defence industrial cooperation with the newly formed CARs to secure its supply chains and maintain its defence equipment in operational condition. On the other hand, newly formed CARs defence industries were not holistic and they needed military-technical cooperation to restore and reorientate Soviet-era defence industry as well as equip their newly formed defence forces. Initially, newly formed CARs neither inherited institutions and mechanisms nor were ready with robust plans to establish defence industrial cooperation with other countries including India. There was a period of uncertainty during the initial years and India having a democratic form of government struggled to deal with newly formed CARs, which needed pragmatism, pro-activism and timely action. The lack of official data on defence industrial cooperation by CARs during the initial years posed a challenge to examine defence industrial cooperation between India and CARs. This study, therefore, examined import and export of defence equipment between five CARs and other countries including India to understand the extent of their bilateral defence industrial cooperation.

The five Central Asian Republics had inherited remnants of defence industries from the former Soviet Union, which was one of the leading defence equipment manufacturers of the world. The absence of complete and independent defence industrial eco-systems became a hurdle in the revival of defence industries of the five CARs. On the other hand, India had been a buyer of defence equipment from the former Soviet Union and its defence industry was not known for developing and exporting defence equipment.

India's domestic defence industry struggled to become *'AtmaNirbhar'*[29] in the past due to technological challenges, lack of economic viability of their products, little participation of private sector and policy gaps. However, several initiatives were taken especially in the last decade to make Indian defence industry competitive, which contributed to progress in defence equipment manufacturing. The defence industrial cooperation between India and five CARs from 1992 to 2016 had to be examined against this background. The trajectory of defence industrial cooperation between India and five CARs of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan was different for each country.

The remnants of Soviet-era defence industry inherited by five Central Asian Republics (CARs) had undergone re-organisation and re-orientation between 1992 and 2016 while Indian

[29] *AtmaNirbhar* is a Hindi word, which means self-reliant

Defence manufacturing had witnessed consolidation. However, to establish defence collaborations with CARs, Indian defence industry had to take measures to remove past perceptions in which India was viewed solely as defence equipment importer and also cater to influence of Russia, a strong military and regional power in the post-Soviet era. The pattern of defence industrial cooperation between India and five CARs of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan varied depending upon various factors, which is deliberated in the succeeding section.

After becoming an independent nation, Kazakhstan was dependent on Russia for defence equipment requirements as it acquired a large number of defence equipment including fighter, ground attack, transport and trainer aircraft, SAMs and patrol craft from Russia mostly in lieu of the Russia's debt to Kazakhstan under the barter deal. Kazakhstan had inherited remnants of the Soviet defence industry that produced a variety of systems, sub-systems of defence equipment during the Soviet era. To begin with, it exported leftover excess Soviet-era defence equipment to other countries between 1992 and 2005; however, export of defence equipment ceased after 2005. Kazakhstan tried to re-organise and re-orientate its domestic defence industry, however, it faced challenges due to limitations of its economy, lack of holistic ecosystem and challenges from defence industry of Russia.

Kazakhstan with the strengthening of economy diversified defence equipment cooperation with other countries especially after 2001. It leveraged its defence procurements from foreign OEMs to seek technology transfer, establish joint ventures to assemble, co-produce or undertake Maintenance Repair and Overhaul (MRO) of defence equipment to strengthen its domestic defence manufacturing industry. The assembly and manufacturing of Infantry Fighting Vehicles (IFVs) with South Africa and Radars and helicopters with France were some of the examples of such collaborations.

Kazakhstan's pattern of import of defence equipment through joint ventures and collaborations with emphasis on local manufacturing and MRO indicates diversification of defence equipment procurement. Kazakhstan maintained cordial relations with Russia however, it established defence industrial relations with other countries and imported defence equipment from Canada, China, France, Germany, Israel, South Africa, South Korea, Spain, Turkey, Ukraine and United States, which indicated that its willingness to look beyond Russia. Its close relations with Russia did not prevent it from establishing defence industrial relations with other

global defence equipment manufacturers. Similarly, Kazakhstan importing armed drones from China in 2015, which indicated not only Kazakhstan's willingness to import but also increasing defence industrial capabilities and influence of neighbouring China in the backyard of Russia. The procurement of defence equipment by Kazakhstan gives an understanding of its evolving relations with global powers and Russia.

The signing Strategic partnerships and "Defence and Military-Technical Cooperation" agreements in 2009 and 2015 respectively laid the foundation for establishing and strengthening cooperation between their defence forces and defence industries. The defence industrial cooperation between India and Kazakhstan was negligible during the first two decades of the study period. The defence industries of both India and Kazakhstan made significant progress during the last five years of study and they started making a pitch for exporting some of their land, air and naval equipment during various defence Expos. The progress made by their respective defence industries created new avenues for strengthening defence industrial cooperation between the two countries. Also, increasing level of defence industrial cooperation of Indian and Kazakhstan with other countries comprising import and joint manufacturing of defence equipment indicates adequate scope exists for both countries to establish bilateral defence industrial cooperation.

The negligible defence equipment trade between Kazakhstan and India may not be an indicator of the future trajectory of defence industrial cooperation between two nations. Indian defence industry made significant progress in defence equipment manufacturing especially after 2010. Kazakhstan's goal of reaching among the top 30 developed countries by 2050, endeavours for self-reliance in defence and aerospace industry by investing in research and development, manufacturing and MRO of civil-military products, and establishing collaborations and JVs with foreign OEMs to locally manufacture defence products indicate that adequate scope exists for Indian and Kazakh public and private sector companies to establish mutually beneficial collaborations. Indian defence industry could also face competition from Russia and China, as they possess greater political and economic leverage with Kazakhstan. These issues would need to be factored in by India while establishing defence industrial engagements with Kazakhstan. The engagement among their Industries would help in identifying potential areas for collaborations, overcoming challenges and proposing a way ahead.

Kazakhstan after facing initial challenges was in the process of building its defence industrial complexes by undertaking R&D, establishing collaboration and Joint Ventures with foreign OEMs towards the end of the study. It resorted to design, development, assembly and MRO of defence products; however, its defence industry was yet to mature into independent industry. Its aspiration to become self-reliant in defence manufacturing and willingness to collaborate with other countries indicates options exist for India for establishing defence industrial collaborations.

India had large defence industrial entities while Kyrgyzstan had torpedo manufacturing and testing facility that could complement each other. Kyrgyzstan inherited lake Issyk-Kul torpedo testing site and torpedo manufacturing facility in the form of Dastan Engineering that were not relevant for its defence forces as it did not have coastal boundaries. On the other hand potential existed for India-Kyrgyzstan to establish collaborations in both.

Issyk-Kul lake was meant for underwater testing and recovery of torpedoes and autonomous underwater vehicles while Dastan Engineering Company produced Torpedoes including famous VA-11 Shkval torpedo that was developed as aircraft carrier killer. Kyrgyz torpedo testing site equipped with sensors to monitor the performance of torpedoes and facility to recover them for improving their accuracy and effectiveness was an important facility for developing, improvement and modifications of torpedoes and underwater systems. Also, availability of sizable number of military personnel associated with the testing of torpedoes and operation of the site in Karakul could have provided value addition to countries developing torpedoes.

Kyrgyzstan lacked motivation to develop torpedoes since it does not have coastal boundaries or threat from Sea and it would have been beneficial for Kyrgyzstan to collaborate with countries in need of testing sites than to develop it with its own money. India pursuing the development of ships, missiles, torpedos and underwater vehicles and Kyrgyzstan having testing facilities and technical experts in torpedo development could have benefitted from each other. However, both did not leverage the complementary capabilities of each other for mutual benefit. India had explored the feasibility of rebuilding and developing torpedo testing site at Issyk Kul lake in 2011. India had bought a few torpedoes from Kyrgyzstan; however, overall defence industrial cooperation between the two nations remained limited till 2015. The signing of defence cooperation agreement between India and Kyrgyzstan in 2015 provided framework for

enhancing the scope and extent of defence cooperation between the two nations. India has defence industrial capability but could benefit from Kyrgz testing and other facilities. Kyrgyzstan lacks financial resources to pay for procuring defencee equipment. Both countries cold examine reaching a mutually acceptable arrangement in which India could use Kyrgyz testing and other facilities and provide defence equipment and other military-technical support as a payment for their use in a barter agreement. India could also examine providing defence equipment through a letter of credit arrangement if required. India and Kyrgyzstan would have to find mutually beneficial common grounds to leverage each other's capabilities. India using testing facilities in Kyrgyzstan and India providing defence equipment are potential areas of defence technical cooperation.

India's defence industrial cooperation with Tajikistan and Turkmenistan was amongst the least among the five CARs. Tajikistan and Turkmenistan are the two Central Asian Countries who neither inherited significant defence industry nor exported defence equipment during the period of the study. The study of import of defence equipment by Tajikistan and Turkmenistan in the previous chapters provides an understanding of their aspirations, economic health and pattern of defence industrial cooperation with other countries.

Tajikistan was the smallest country with the non-existent defence industry. It was dependent on imports and military assistance from other countries for equipping its defence forces and protecting its interests. Russia and Bulgaria were the only defence equipment suppliers with Russia leading the supply of defence equipment. Its defence forces were equipped for undertaking land operations with limited air defence and aerial logistics support capability, which was provided by small air element comprising air transport, armed assault and surface to air defence systems.

There was little cooperation between their defence industries due to various reasons. Tajikistan's defence technical cooperation with Russia and Bulgaria, and rising potential of Indian public and private sector entities to supply cost-effective defence equipment, systems and solutions indicate that scope exists for India and Tajikistan to establish defence technical cooperation. However, Tajikistan's capability to pay for defence equipment acquisition would remain limited in the near future and it would be prudent for India to find pragmatic ways for techno-financial solutions.

Tajikistan would remain a key player in Indian's defence cooperation dynamics amid potential of China and Pakistan forming anti-India nexus and other challenges. Pakistan made an unsuccessful effort to derail India-Tajikistan bilateral defence cooperation by proposing upgradation of airfields and it may continue to do so in future. It would need to find innovative ways to expand defence industrial cooperation by engaging with stakeholders in Tajikistan. It could ascertain gaps in defence technical cooperation of Tajikistan with Russia, China and other countries and provide indigenous products to establish a sustainable and long term bilateral defence technical partnerships.

India-Turkmenistan defence industrial relations were almost non-existent during the period of the study. Turkmenistan's adoption of permanent neutrality in 1995 changed its defence cooperation trajectory with other nations amid various internal and external challenges. Turkmenistan did not inherit defence industrial manufacturing entities of any significance and there was no data to indicate that it exported any defence equipment since its independence. The decision of Turkmenistan not to join multilateral defence organisations was out of the league in the region. The adoption of permanent neutrality in 1995 should have normally led to Turkmenistan establishing strong air, sea and naval forces that are appropriately equipped to protect its interests. However, its import of defence equipment was negligible between 1992 and 2008. After 2008, its import of defence equipment increased substantially and it became the second-largest defence equipment importing country in Central Asia after Kazakhstan. Its defence procurement program was aimed at developing capabilities of its defence forces to protect its interests independently in the absence of affiliation to multilateral defence cooperation treaty or group. It procured predominantly second-hand defence equipment with Russia becoming the largest and China the second-largest supplier. Turkmenistan diversified procurement and acquired defence equipment from Austria, Belarus, Czechoslovakia, France, Germany, Italy, Netherlands, Ukraine, Israel, Turkey, UAE and China indicated diversification of defence equipment procurement. However, interesting aspect of its defence equipment procurement trend was that it did not procure defence equipment from the US. Also, China became defence equipment supplier to Turkmenistan rather late as it did not supply defence equipment between 1992 and 2014 and all of its defence equipment was supplied between 2015 and 2016. The acquisition of UAVs, missiles and radars made Turkmenistan one of the largest receivers of Chinese defence equipment in Central Asia.

India and Turkmenistan have adequate scope for establishing defence industrial cooperation in future despite its absence during the period of the study. Its acquisition of defence equipment from multiple sources indicates its openness to diversify defence procurement. Turkmenistan's cordial relations with India in the past and its approach of diversification of defence procurement provides India with an opportunity for establishing defence technical cooperation.

Turkmenistan after adopting permanent neutrality and neglecting the development of its defence forces in the first two decades of independence reviewed its approach and was in the process of procuring weapons to strengthen its defence forces. The near absence of defence industry in Turkmenistan and emerging defence industry of India provides an opportunity to establish defence technical collaboration between the two countries. Turkmenistan in the last decade of the study made special endeavours to expand defence industrial cooperation with other countries including India and joint webinar between defence industry webinar India in December 2020 was an indicator of its defence industrial outreach program. However, India would need to factor in Turkmenistan's increasing defence cooperation with China and Pakistan.

The prospects of India-Uzbekistan establishing defence industrial cooperation appeared promising in the beginning as Uzbekistan inherited some of the key defence-aeronautics manufacturing units including famous TAPiCH aircraft factory that produced aircraft, aero-engines, mortars, mines, grenades, etc. during the Soviet era. These facilities could have addressed its concerns regarding MRO and upgradation of its large inventory of defence-aeronautic equipment as well as could have helped it in filling technology gaps in domestic aeronutics industry. However, Uzbekistan failed to revive TAPiCH plant and other defence manufacturing entities despite its best efforts. Uzbekistan's export of 12 transport aircraft and one attack helicopter to China, India and Georgia in collaboration with Russia and Israel during the entire period of study was minuscule considering it had inherited one of the biggest transport aircraft manufacturing plant of the erstwhile Soviet era. The departure of Russian engineers and technicians after the disintegration of USSR led to disruption in the defence industrial ecosystem. Uzbekistan possessed knowledge of 'Know What' and 'Know How' but not the 'Know Why' of aircraft manufacturing became a limitation in reviving its aeronautics industry. The paucity of funds and non-availability of expertise in Uzbekistan adversely impacted chances of revival of capital-intensive heavy transport aircraft industry. Also, lack of convergence with Russia added

to challenges. All these factors led to the closure of TAPiCH plant in 2015, which brought an end to its aeronautics manufacturing industry.

Uzbekistan unlike other CARs looked beyond Russia since the beginning and diversified defence equipment import with the US becoming the leading supplier followed by France, China, Canada, Spain and Russia. The pattern of import of defence equipment and establishing of defence cooperation by Uzbekistan indicated its tilt towards the Western defence equipment manufacturers. Russia lost out in its defence industrial relations as Uzbekistan despite being the former Soviet Republic and having inherited large number of defence equipment, procured only 50 BTR-80 APC from Russia during the entire period of the study, which was minuscule.

China supplied armed UAVs to Uzbekistan at convenient terms comprising cheaper rate, easy terms of payment and without restrictions, which the US, Russia and other global defence suppliers could not match. The decreasing defence industrial cooperation with Russia and increasing engagement with China, the US and other Western countries indicates changing priorities of Uzbekistan and increasing opportunities for global manufacturers.

Indian defence forces having large inventory of Russian origin transport aircraft could have benefitted from the remnants of Aeronautics Industry of Uzbekistan. The Uzbek engineers and contractors possessing experience of manufacturing, maintaining and overhauling large-bodied transport aircraft could have been utilised to establish MRO facilities for transport fleet of India. Indian defence industry pursuing the development of Dornier and Saras (12-20 seat) and RTA-70 (50-70 seat) transport aircraft and having an inventory of IL-76, IL-78 and AN-32 transport aircraft could have benefitted from the expertise of Uzbek engineers.

Uzbekistan having the second-best economy in Central Asia, India's emerging defence industry and absence of conflicting interest indicate a potential for establishing mutually beneficial defence industrial cooperation. However, all this did not happen as defence and aeronautics cooperation despite being an important area of convergence was not optimally leveraged for establishing robust defence industry cooperation between the two nations. India-Uzbekistan defence industry cooperation was negligible and underutilised. However, situation in the last three decades has changed as Indian defence industry has grown and become robust while Uzbekistan defence industry faced challenges as the aircraft-manufacturing factory was closed and its defence industry struggled. India having developed a fighter, trainers, helicopters, ships, aircraft carriers, guns, tanks, missiles, UAV, etc. was well placed to provide military-

technical equipment and solutions to Uzbekistan defence forces. The interaction between defence industries and users of two countries would help in strengthening defence industrial cooperation between the two nations.

The study examined defence cooperation comprising cooperation between defence forces and defence industries of India and five CARs in the fifth chapter. The cooperation among the defence forces of India and five CARs of Kazakhstan, Kyrgyzstan, Uzbekistan, Tajikistan and Turkmenistan after a delayed beginning had witnessed a steady increase. The cooperation between defence industries of India and five CARs was relatively low during the period of study; however, scope existed for enhancing defence industrial cooperation with CARs. The chapter tested and proved the hypothesis that complementary capability of defence forces and defence industries of India and CARs provide an opportunity for establishing robust defence cooperation between them.

This chapter also tested the hypothesis that terrorism emanating from Af-Pak region provides common grounds to strengthen defence cooperation between India and CARs. It was proved that terrorism especially the one emanating from Af-Pak region provided stimulus for strengthening defence cooperation by signing counter terrorism cooperation agreements, military training, extradition treaties and conduct of joint counter-terrorism exercises.

To sum up, the study examined defence cooperation comprising cooperation between defence forces and defence industries of India and five Central Asian Republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. India and five CARs had significant potential for establishing defence cooperation with each other.

Indian defence forces had evolved as professional defence forces and they had established a fair degree of cooperation with CARs, which was on the rise. However, its defence industry could not evolve adequately to make India self-reliant in defence manufacturing. India took policy initiatives to overcome limitations of domestic defence industry. The development and supply of a variety of air, land, naval and space systems including fighters, helicopters, trainers, tanks, ships, submarines, missiles, radars, torpedoes, etc. were testimony of this

progress. This led to substantial increase in supply of domestic defence equipment to Indian military as well as in global market, especially in the last five years.

The comparison of pattern of defence cooperation of CARs with other global players vis-a-vis India indicated that extent of defence cooperation between India and CARs did not achieve its full potential as other countries were able to establish broader defence cooperation especially defence-industrial cooperation with CARs. Indian defence industry equipped with a number of defence equipment was well placed to export defence equipment as well as establish collaborations with Central Asian Republics. India had initiated structural and policy reforms, and launched initiatives like Make in India and AtmaNirbhar Bharat (Self-reliant India) to stimulate domestic manufacturing and export defence products towards the end of the study. These initiatives led to Indian companies producing number of defence equipment that had potential for export in the global market. The rising capability of Indian defence industry was visible in increased acceptability of domestic products in Indian defence forces that were known to be demanding. However, Indian defence industry lacks experience in exporting defence products and they would need to make an effort to establish and strengthen defence industrial collaborations including with CARs. India was also looking for collaborators in design, development, testing to fill its technology gaps as well as establish manufacturing supply chain for global market, which could make some of the Central Asian republics as potential partners.

The five CARs inherited remnants of Soviet-era defence industry; however, all of them struggled to revive their defence industries due to various reasons that were deliberated in the study. India imported limited defence equipment from Kazakhstan, Kyrgyzstan and Uzbekistan while it did not import any equipment from Turkmenistan and Tajikistan. However, Soviet-era defence industry inherited by Uzbekistan and Kyrgyzstan became irrelevant while Kazakhstan re-oriented its defence industry by establishing collaborations and joint ventures with emphasis on domestic production and MRO.

Russia and China were the two key players in defence cooperation dynamics of India and five CARs by establishing defence cooperation through bilateral as well as multilateral forums. However, Russia's influence over the five CARs was not uniform. On one hand, it wielded significant influence over Tajikistan, Kyrgyzstan and Kazakhstan; however, its influence over Turkmenistan and Uzbekistan insignificant. Five CARs were able to establish defence

cooperation with other countries through bilateral as well as multilateral forums like SCO despite the influence of Russia. China was initially cautious in establishing defence cooperation with CAR, however, in due course; it became a significant player in the region. It was pragmatic in establishing defence cooperation with CARs bilaterally as well as through SCO. It was able to establish bring all CARs in SCO except Turkmenistan.

The absence of land connectivity posed challenges in enhancing cooperation including in the defence domain. The level of defence cooperation comprising cooperation between defence forces and defence industries of India and five CARs had shown an upward trend during and after the study. The recent developments indicate that considerable potential existed for enhancing cooperation between their defence forces and defence industries to a higher level.

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