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CENTRE FOR AIR POWER STUDIES

VISION

To be an independent **centre of excellence on national security** contributing informed and considered research and analyses on relevant issues.

MISSION

To encourage independent and informed research and analyses on issues of relevance to national security and to create a pool of domain experts to provide considered inputs to decision-makers. Also, to foster informed public debate and opinion on relevant issues and to engage with other think-tanks and stakeholders within India and abroad to provide an Indian perspective.

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➤ EDITOR'S NOTE

The year just gone by will be remembered for more reasons than one. For air power enthusiasts, and also for those who watch developments across our western border, a new paradigm to deal with the scourge of terrorism was born when ordnance was dropped by Indian Air Force (IAF) fighter aircraft on February 26, 2019, on Pakistani sovereign territory to neutralise a terrorist training camp at Jabba Top near Balakot in the Khyber Pakhtunkhwa province of Pakistan. This was a demonstration of political will of the strongest kind; resoluteness to punish the enemy for its unabated acts of terrorism. The instrument of national power chosen to convey the message was the IAF. The new paradigm was the inherent message in the action: "You mess with us, we will get you, no matter where." This message was conveyed loud and clear to the 'deep state' within Pakistan.

For far too long (since the Nineties), the Indian leadership had been faced with the dilemma of finding space for conventional conflict within the 'nuclear overhang' – a 'professed' readiness by Pakistan to use its nuclear weapons if the Indian state ever crossed the cleverly articulated – by Maj Gen Khalid Kidwai – red lines (which have, of course, never been acknowledged by the Pakistan side as being the official policy). Pakistan had created an aura about itself of being an irrational state in the minds of not only the Indian leadership, but across the globe. This, then, had weighed upon Indian political decision-makers, besides other considerations, while choosing their options for dealing with Pakistan. The ghost of 'self-deterrence', due to an imagined certain use of nuclear weapons by the adversary, if India were to cross the Rubicon, was finally laid to rest by the actions of February 26, 2019.

As far as the mission execution, *per se*, was concerned, the timing decided for the mission demanded the maximum from the pilots; flying at an unearthly

hour of 2.30 in the morning – at a time when the biorhythms of humans are known to be at their lowest – put a lot of stress on the pilots who knew the stakes involved in this mission of national importance. They carried out the mission flawlessly, with utmost professionalism. Equally important was the requirement that the mission be carried out in utmost secrecy, for obvious reasons. It goes to the credit of the IAF and the leadership at every level that despite the very large number of aircraft involved, taking off from several bases, not a word ‘leaked’ to the other side. This speaks volumes for the integrity of air warriors belonging to the Bharatiya Vayu Sena.

The response by the Pakistan Air Force (PAF) on February 27, 2019, has been debated *ad nauseam* since the event.

Suffice to say that the technological edge that the IAF had enjoyed vis-à-vis the PAF during the Kargil conflict – that of Beyond Visual Range (BVR) weapons, which the PAF did not possess at the time – had been blunted by the PAF with their acquisition of 500 AIM-120 C-5 A Advanced Medium-Range Air-to-Air Missiles (MRAAMs) from the US, the first batch of which arrived on July 26, 2010. The effective launch range of the AMRAAM is greater than that of the BVR missiles in the IAF’s inventory. This asymmetry needs to be addressed at the earliest – without waiting for the arrival of the Meteor on the Rafale – as a repeat of a Pulwama or Uri type of incident cannot be predicted. If the air force is called in again, it would then be able to do so with all guns blazing.

Another event in the year gone by that has set a new benchmark for asymmetric warfare was witnessed when an impoverished group of rebels (Houthis) in Yemen were able to cause significant damage to the oil fields of their affluent neighbour, Saudi Arabia (that is among the top twenty economies of the world, and is the world’s third largest defence spender whose annual defence expenditure is between 11-12 per cent of its GDP). September 14 saw the inspirational use of ‘modified’ Qasef 1 drones (loitering munitions) that easily evaded the acquisition radar of the sophisticated MIM-104 Patriot Air Defence System that had been integrated with the ‘Peace Shield’ Integrated Air Defence Command and Control System – one of the most sophisticated

air defence systems in the world. Having penetrated the Saudi air space with impunity, the Houthi drones were able to carry out successful attacks against the Abqaiq and Khurais oil fields. Saudi Arabia's oil output was neutralised by half – a huge 5.5 million barrels per day! Crude prices across the world shot up by 15 per cent; fire-fighting by the US stabilised the price of oil.

These were NOT isolated attacks carried out by the determined Houthis – who had nothing more to lose as they had already been bombed relentlessly since 2015 by the coalition created by the Saudis from among the Gulf countries. In May 2019, the Houthis had attacked the East-West oil pipeline of Saudi Arabia, causing fires, although production was not affected then. They also flew past the Saudi water purification plants – a lifeline for the Saudi people – and posted pictures of the same in a warning to Saudi Arabia to stop further attacks. The Houthi rebels, members of the Zaidi branch of Shi'ite Islam, have been able to stave off attacks from the powerful coalition created by Saudi Arabia so far. Of course, they appear to be receiving active support from Shi'ite Iran which is using them for continuing a proxy war on its (Iran's) behalf against the Sunni kingdom and other Gulf states.

The Houthis have also been using drones laden with bombs (having a low yield) to successfully cause casualties among the Saudi troops. This appears to be an innovative use by the Houthis of very low cost drones for carrying out 'air strikes', despite not having an air force of their own. Commercial drones are increasingly being used for political violence as well. While the Venezuelan president survived an assassination attempt from a drone in August 2018, a Saudi army brigadier general was not so lucky; on January 10, he, along with five other military personnel, was killed when a Houthi drone – similar to the one that carried out the attacks on the Aramco oil fields later – arrived over the Al-Anad air base and detonated near the grand stand. The inherent danger of use of drones for sub-conventional warfare needs careful consideration by those dealing with national security across the globe.

Accent on counter-drone technology has only picked up after such devastating attacks – including political assassination attempts. The first basic requirement, of course, would be to spot the incoming threat. Use of all kinds

of trackers – electro-optical, infra-red, acoustic, radar – would be necessary. To neutralise the threat, it would first need to be identified as a genuine threat before it is engaged, lest an innocent object is shot down. To cater for the multi-directional threat not only from a single drone but also from swarms, companies like the Syracuse Research Corporation (SRC) of North Syracuse, New York, are working on the use of Artificial Intelligence (AI), along with machine learning, in view of the nature of the threat being beyond human capability to handle ‘manually’. The panoply of anti-drone weapons could include the Global Positioning System (GPS) jammers, Radio Frequency (RF) jammers, laser and high-power microwave weapons (also called ‘phasers’). While laser weapons are highly directional and would almost certainly destroy the incoming threat completely, phasers would prove more suitable for neutralising swarms. Also, since high-power microwave energy would only affect the electronics inside the drone, the drone itself would remain largely unharmed; this would help in identifying the source of the threat later. Drone manufacturers are deeply concerned about the threat to their products from anti-drone systems (also termed ‘counter-small Unmanned Aerial Systems (UAS)’); they are, therefore, attempting to make their drones resistant to counter-drone systems. This counter counter-drone technology includes attempts to make the drones completely silent and invisible to radar. The race is on!

Air defence planners need to sit with industry to work on optimum solutions to cater for the existential – not emerging any longer – threat from drones and swarms.

The third event – that has the potential to tilt the battle for air dominance in the Western Pacific in favour of China in the future – was the first long range joint air patrol carried out by the Russian Air Force (RuAF) and the People’s Liberation Army Air Force (PLAAF) over the Takeshima/Dokdo group of islands on July 23. Although a seemingly minor incident, this first joint air action by the RuAF-PLAAF had the potential to spin out of control because of the “unlawful and dangerous actions” (as per the Russians) of the Republic of Korea Air Force pilot who fired almost 400 live rounds of front

gun ammunition to warn off the RuAF A-50 Airborne Warning and Control System (AWACS) aircraft that overflew sovereign air space over the islands mentioned above (and which are claimed by both Japan and South Korea).

And, finally, as the year comes to a close, the Government of India announced that Gen Bipin Rawat, the outgoing Chief of the Army Staff (COAS), has been appointed the first Chief of Defence Staff (CDS) of the Indian armed forces. Our congratulations to Gen Rawat on this singular honour; we wish him an eventful, successful – albeit challenging – tenure as the CDS.

We wish all our readers the very best of health and joy in the New Year.

Happy reading.

A handwritten signature in black ink, appearing to be 'James', with a small number '4' written below it.

COMBINING CYBER WITH AIR FORCE OPERATIONS

RAMESH RAI

INTRODUCTION

Cyber technology has made its impact in the battle space, much as the technology of flight had a century ago, and evolved as a new domain. Cyber is now well acclaimed and established as the fifth domain of warfare, at par with the land, sea, air and space domains. We can safely postulate that any future conflict will have a large component of cyber warfare which may gain predominance as the years go by as no nation would resist the temptation to destroy, disrupt or confuse the enemy leadership, population, armed forces or the decision-making loops using cyber space.¹ Whether cyber would bring about a paradigm shift in the conduct of warfare or change the fundamental character of war will depend on how its doctrine and operational concepts get developed and integrated with the war-fighting concepts of the other domains. Conceptually, each domain develops and prepares to operate independently and collectively to use its prowess when called upon to do so, and it is certain that the cyber domain would follow a similar contour. Irrespective of its construct, cyber warfare is poised to emerge as a significant component of a future war.

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1. <http://airpower.airforce.gov.au/APDC/media/PDF-Files/Pathfinder/PF211-Future-Wars-and-Air-Power.pdf>.

Since a wide range of social, economic, political and military functionalities depend on computers, networks, the internet, electronic technologies and the electro-magnetic spectrum – in other words, on ‘cyber space’ – it is preordained that cyber warfare will be used to exploit this dependency to meet political and military objectives.

Broadly speaking, cyber warfare is the use of technology to penetrate another nation’s/enemy’s computers or networks for the purpose of causing damage or disruption.² Since a wide range of social, economic, political and military functionalities depend on computers, networks, the internet, electronic technologies and the electro-magnetic spectrum – in other words, on ‘cyber space’ – it is preordained that cyber warfare will be used to exploit this dependency to meet political and military objectives. Thus, the predominance of cyber warfare in a future conflict, which is

deemed to be hybrid, is connatural. Computers and networks are embedded in every system of a nation’s being, enabling administration, banking, business, industry, logistics, electric grids, communications, air traffic control, air space management, smart cities and much more, to function efficiently each day. It is the vulnerability of this very actuality that the enemy will exploit through cyber warfare and which a nation would have to guard against. The threat is real and a cyber attack on a government’s Information Technology (IT) network could bring an entire nation to its knees. In April 2018, the small independent Caribbean nation of Saint Maarten faced a total public shutdown for an entire day when its IT network was hacked for the third time over a year.³ A coordinated cyber espionage campaign was run by a group called “Turbine Panda” from 2010 to 2015 to help China acquire intellectual property needed to design and build its own C-919 airplane. The group successfully breached IT networks of many companies, including

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2. Lt Col Steven J Anderson, USAF, “Air Power Lessons for an Air Force Cyber Power Targeting Theory”, *The Drew Papers*.
 3. <https://www.weforum.org/agenda/2018/06/how-organizations-should-prepare-for-cyber-attacks-noam-erez/> <https://securityaffairs.co/wordpress/71236/hacking/sint-maarten-cyber-attack.html>.

Safran, Capstone Turbine, Ametek, Honeywell, General Electric, and others.⁴ These examples highlight the extent and severity of cyber attacks. It is imminent that cyber forces could operate around the globe and with a much wider connotation than the battle space of the militaries, and would need to be addressed at the national level. The onus of protecting the nation from such cyber attacks will lie solely on the national leadership.

In the future, cyber space will pervade every conventional war-fighting domain more and more as our armed forces get increasingly dependent on computers, networks and information technologies to enhance their efficacy. This will create new and ever-increasing vulnerabilities.

CYBER SPACE AND ARMED FORCES

Since the armed forces will also be in the ambit of cyber space, the military element of cyber warfare will have to be culled out from within the national framework. The armed forces would have to protect not only their platforms, weapons, information, networks and capabilities but also conduct offensive cyber operations in the respective domains. In the future, cyber space will pervade every conventional war-fighting domain more and more as our armed forces get increasingly dependent on computers, networks and information technologies to enhance their efficacy. This will create new and ever-increasing vulnerabilities. The onus will be on those heading these conventional domains to be prepared to defend their cyber space from intrusions and prevent disruptions in their operations. At the conceptual level, integration of both non-kinetic and kinetic operations emerges as the key doctrinal concept for fighting a future war. Accordingly, the Indian armed forces will have to position themselves to develop cyber warfare capabilities to be employed independently or in support of their domain operations. This would entail developing both defensive and offensive cyber forces to counter the enemy's cyber capabilities. Irrespective of whether cyber operates independently or in support, it will have to connect with

4. <https://www.computing.co.uk>ctg>news>china-espionage-c919>.

operations in other domains as future wars would have a multi-domain connotation and combining the war-fighting tenets of each would be imperative.

CYBER AS PART OF THE FUTURE BATTLE SPACE

A future war in our context will have a pronounced cyber threat from China as it consolidates on its new operational concept of fighting an informationalised war. In the last decade, China has made considerable progress in developing cyber warfare capabilities in terms of its policies, restructuring organisations, building human expertise, and raising new establishments. China and Pakistan are known to be developing cyber warfare capability to deter a physically and technologically superior military adversary.⁵ Given the above, and the operational character of the battle space as it obtains today, it is certain that a future two-front war will have a hybrid construct. The hybridity could be with a mix of regular forces using conventional weapons intermeshed with irregular forces using irregular tactics with the support of terrorists, insurgents, cyber intrusions, and possibly some dimension of social and political warfare. While the cyber intrusions with political, economic and social connotations would need a whole of nation approach, the armed forces would have to tackle intrusions into their cyber space so that their operations are not constrained or inhibited.

CYBER AND AIR FORCE OPERATIONS

The cyber space is a physical phenomenon that serves to host the Electro-Magnetic (EM) spectrum, computers, networks, flow of digital data and information, much in the same way as air hosts airborne systems (fighter aircraft, drones, missiles, etc.). Air forces in particular rely heavily on cyber space since most of their operations are synchronised, coordinated and integrated through the flow of information via computers, sensors, datalinks, information systems and information technology. The air force

5. <https://usiofindia.org/publication/usi-journal/chinas-cyber-warfare-capabilities/>.

will need to factor its cyber space uniqueness and control this domain to retain its freedom of action. This aspect assumes greater significance and relevance for the future, as its reliance on cyber space would be increasingly heavy as it transforms itself to a 5th Generation (Gen) force in the years to come. The Indian Air Force (IAF) is at the threshold of configuring an Operational Data Link (ODL) and translating to network-centric operations. It already has a secure encrypted Air Force Network (AFNET) operational since 2010, facilitating enhanced communications and data transfer for the Air Defence (AD) set-up. The Integrated Air Command and Control System (IACCS), connecting the data of all ground-based radar sensors and Airborne Warning and Control System (AWACS) rides on the AFNET. With the ODL configured, all its 4.5 Gen (Mirage, SU-30, Tejas and Rafale), 5th Gen manned (Advanced Medium Combat Aircraft – AMCA) and unmanned (Autonomous Unmanned Research Aircraft - AURA) platforms, Intelligence, Surveillance and Reconnaissance (ISR) systems, surface-based weapons systems would ride on the ODL to transfer data to and from the IAACS, between platforms and Communication and Control (C2) centres to complete all elements of the net-centric set-up. Networking primarily links all sensors, systems, weapon platforms and C2 centres for data to flow to create enhanced situational awareness and then to bring to bear the most appropriate weapon on the target, enhancing the efficacy and tempo of operations. The implication of becoming a 5th Gen air force is the vulnerability of the cyber space to intrusions by the enemy that could restrict, disrupt or inhibit air force operations. Hence, it would be imperative for the IAF to cultivate capabilities to defend or protect its cyber space.

From the above discussion, it emerges that the key doctrinal update for the air force would be to integrate the cyber domain into its war-fighting doctrine and operational concept. Air forces exploit the third dimension of the operational environment using combat and support systems to leverage speed, range, flexibility, precision, tempo, and lethality, and create the desired effects within and from the air. This will now require an intermesh with the cyber domain in both the defensive and offensive sense. Cyber defensive

The networked system is at risk owing to its construct and configuration, primarily at the points of interconnection and interaction with its clients. Any weakness even in a single system or its connect could disrupt the entire network and the results would be catastrophic.

capabilities would be required to defend cyber space and ensure mission execution, even when under a cyber attack. This cyber attack could be in the form of denial-of-service attack from outside a firewall, manipulating data from within a firewall, interrupting communications, taking control of a system, and others. In a networked arrangement, the vulnerabilities would be far too many since most combat, combat support, sensors and information systems would be connected with the ODL. The IAF must defend these to ensure assured access to cyber space.

DEFENSIVE CYBER OPERATIONS

Defensive cyber space operations are intended to preserve the ability to utilise own cyber space capabilities for projecting air power. The IAF's network-centric set-up would comprise a very complex mix of an encrypted data link, software controlled systems, 5th Gen manned and unmanned platforms, AWACS, space and airborne ISR, ground-based radars, AD systems, C2 centres, a host of mainframes to personal computers, modems, interfaces of Local Area Networks (LANs) to the IAF's intranet, the world wide web, civilian and military communication systems, navigation systems, and radios in all frequency ranges. The networked system is at risk owing to its construct and configuration, primarily at the points of interconnection and interaction with its clients. Any weakness even in a single system or its connect could disrupt the entire network and the results would be catastrophic. Hence, not only the entire system but each individual client has to be cyber protected and defended. This would be extremely critical. At risk is not only the external arrangement of the network, but also the software within individual systems and platforms which could be controlled or damaged to disrupt air operations.

In the future, manned and unmanned platforms would be increasingly dependent on software. These platforms would carry out internal communication through an internal data bus for various functionalities like fly-by-wire, auto throttles for engine control, computers for navigation, weapons aiming, threat management and many other solutions. The Jaguar, Mirage-2000, SU-30, Tejas, Rafale and AMCA fall in this category. The data bus, though primarily meant for internal communication within the platform or any system, would also serve for the integration into the IAF's network arrangement. It is through these external exchanges that the basic software of a system, including an aircraft, could get vulnerable to a cyber attack. The SU-30 that crashed on the Indo-China border on May 23, 2017, killing two pilots, is presumed to be the victim of such an attack from some foreign nation, which could include China.⁶ Thus, the communication connections of the network and its clients, inherently serve as the conduit for breach of security. All such connections would have to be controlled and monitored to prevent cyber infiltration. The IAF's doctrine would have to account for these vulnerabilities and provide appropriate methods in its approach to cyber defence.

Cyber intrusions exploit system weaknesses, engineering techniques of computers, and human limitations to steal and bypass signal defences like firewalls and physical defences like passwords and machine-to-machine authentication which are primarily based on identification and authentication codes.

CYBER INFILTRATIONS

Cyber intrusions exploit system weaknesses, engineering techniques of computers, and human limitations to steal and bypass signal defences like firewalls and physical defences like passwords and machine-to-machine authentication which are primarily based on identification and authentication codes. Fundamentally, cyber systems can be infiltrated in

6. <https://www.cybersecurity-insiders.com/china-cyber-attacks-indian-sukhoi-30-jet-fighters/>

two ways, i.e. by physical and signal inputs. Physical infiltrations are made through the system hardware via the keyboard, mouse, cockpit controls, flight control, weapon system controls and removable media that provides physical inputs into a system. The first line of defence, therefore, would be to secure the physical inputs and outputs of a system. If these are not secure, the system is not secure.

Signal infiltration comes through existing indirect or direct connections to the network. These connections are typically LANs, infrared (IR) devices, Radio Frequency (RF) connections (radios), and modems (phone lines) wherever they may be in the entire geographical spread or layout of the IAF. This includes various Command Headquarters (HQs), bases, squadrons, radars, Surface-to-Air Missiles (SAMs), control rooms, etc. Any system, including a network with external connections, can theoretically be infiltrated. The number of potential entry points is limited only by the number of direct and indirect connections into the system. For instance, a system with an internet server is vulnerable to cyber infiltration from any computer connected to the internet. An isolated network with a modem is vulnerable to any computer that can call into it. Defence mechanisms to prevent signal infiltrations would have to be incorporated within the software and hardware by way of passwords, coded signals, firewalls, terminal identification, isolation, and system monitors. Every software system would need to have proactive and effective virus protection in place. To provide the best defence, these techniques must be customised, combined, and layered with one another.

CYBER DEFENCE: LAYERED APPROACH

Our cyber defence mechanism would, thus, need a layered approach. The first layer would be to ensure the integrity and security of the information environment from an Information Technology (IT) perspective to keep the physical and signal intrusions at bay. This layer would include designing, building, configuring, securing, operating and maintaining the information environment with IT security aspects fully in place, i.e. physical security, password protection, password encryption, data protection, data encryption,

firewalls, virus scanner, virus protection, etc. as discussed in the preceding paragraphs. This must be done in a proactive manner across the entire IT spread of hardware, software, data, individual users, system administrators, etc. without exception. The concept is to focus on the security from an IT perspective when configuring every part of the information sphere, particularly the ODL, IACCS, AFNET, data storage, LANs, L3 switches at our bases and Command and Air HQs, with emphasis on the security of data at rest and in motion within and across the IAF's information environment. This layer can be thought of as an umbrella protection against an agnostic threat. Our IT security measures must serve as a baseline to mitigate known vulnerabilities from within and from outside, covering a broad range of external threats. Unfortunately, even a perfect IT security baseline would not provide complete security. Defensive cyber space operations would be required to deal with the full range of cyber space threats.

The next layer would be to create defensive forces to defend own cyber space capabilities from active threats, specifically for the protection of data, networks, software-enabled platforms/devices and other designated systems by defeating cyber space intrusions as they occur. Defensive cyber space operations must be seen as active cyber space defence activity that would allow us to interdict an adversary after he penetrates the first layer.⁷ Accordingly, this layer would involve creating abilities to detect, analyse, and mitigate threats that cross over. As opposed to the first layer which was threat agnostic, this layer would be threat specific. Defensive cyber operations in this layer are executed against specific threats with malicious capability and intent to affect our cyber environment that have outsmarted the first layer. Since such outmanoeuvring of the outer layer could happen across the entire information sphere, defensive cyber operations must be prioritised to occur first at the most critical part of the environment so that our operations are not disrupted. In the air force jargon, these operations could be said to be akin to defensive counter-air operations, wherein air power takes on the intruding enemy forces with own defensive forces.

7. n. 2.

EVOLVING DEFENSIVE CYBER FORCE

In evolving a defensive cyber force, the IAF would have to identify key parts of the information environment that are vital for its operations. For example, if the IACCS system is a priority for the defence of the nation, then, perhaps, this is the priority. Step two in this example would be to technically map the key elements from the sensor-to-shooter, the network and systems over which data would move to the command centres for attack assessment and then to the entity directed to respond. Mapping defensive operations would involve determining the systems in play with their own vulnerabilities and those at the points where one system connects to another and then by linking vulnerabilities with adversary capability and intent, the priority risk areas on which to focus our defensive effort get identified.

Defending the IACCS or any other key cyber environment would involve a run of cyber ISR functions to detect and analyse the kind of threat and the defensive measures that need to be employed. These defensive measures could be taken internally within own cyber space or preemptively taken outside our information environment to stop or block the attack (offensive counter air). The essential task would be to hunt the friendly cyber arena for intruded threat/s and direct an appropriate internal response in almost real time. Cyber ISR capability would be the key to this function. Conceptually, it calls for a robust cyber ISR scan capability over the entire network, along with the capacity to create the defensive cyber forces capable of mitigating a detected threat. This would be a tough call and the core aspect of cyber defence, requiring cyber experts with knowledge on each individual system and component that makes up our cyber space. This capability emerges as the key determinant of our ability to provide freedom of manoeuvre in own cyber space. We must, however, optimise the employment of forces across both layers of defence as each would affect the other, but that discussion is beyond the scope of this article.

Potential vulnerabilities are not limited to the network and its clients but would also include the entire 'ecosystem' of which maintenance, engineering, logistics, spares management, fuel management, gases, etc. would be

essential parts. Measures to protect the Integrated Material Management Online System (IMMOLS), Electronic Maintenance Management System (e-MMS) are equally important as these may provide a bridge for malware to jump from the IAF's intranet to the aircraft platform. Beyond aircraft related systems, there are systems at the airfield that rely on the cyber space and EM spectrum that directly support air operations, i.e. air traffic management, meteorology, provisioning electricity, command and control centre at the base, etc. Cyber space will remain a contested domain, as our enemy would know our dependability, and it is unlikely that we will ever have continuous or uncontested cyber space superiority; however, in the same way as we approach operations in the air domain, we must have enough control of the cyber space at the time and place of our choosing to get our operations through.⁸ While cyber defence is the lynchpin to providing freedom of movement in the cyber space, offensive cyber capability is where the cyber domain offers targeting payoffs for employment of air power. Developing offensive cyber forces would be equally important.

NEED FOR OFFENSIVE CYBER FORCES

A discussion on offensive cyber operations is based on the premise that these operations would have the potential to meet the security challenges by combining with the offensive operations of the air force. In doctrinal terms, it calls for culling out a cyber-air targeting philosophy that would adequately meet the mission objectives.⁹ Given the lack of warfare experience in the offensive cyber arena, one could approach the cyber-air integration by adopting the air power targeting philosophy as a start point and then determine the extent to which cyber combines in neutralising the plethora of the IAF. Over time and as integration of the cyber and air domains pick up momentum, clarity will emerge on its operational utility and efficacy. Perhaps, and more importantly, offensive cyber weapons would match or even better the versatility of the air domain targeting, as they would also

8. Ibid.

9. Ibid.

A sound doctrine for targeting would have to be established, based on the capability of cyber forces that the IAF is able to develop, and the technology, expertise available, employment philosophy and experience gained.

have the potential to address targets across the full range of operations, i.e. from the strategic to the tactical and from the conventional to irregular war. The aim at all levels would be to deny, disrupt, or degrade enemy capabilities, either directly or indirectly (through deception), either by acting alone or in concert with air power. At the strategic level, cyber could target the larger nodes of enemy systems whose disruption would provide an outsized leverage for coercion, while, at the tactical level, support local actions, depending on the demands of the tactical situation. For example, a cyber attack

on an AD radar or Surface-to-Air Missile (SAM) system on the ingress route of a strike as part of Destruction of Enemy Air Defence (DEAD) or Suppression of Enemy Air Defence (SEAD) operations would typically meet the air force's tactical requirement in what could be termed as a localised issue. But at some point, a sound doctrine for targeting would have to be established, based on the capability of cyber forces that the IAF is able to develop, and the technology, expertise available, employment philosophy and experience gained.

INTEGRATION OF OFFENSIVE CYBER AND AIR OPERATIONS

Integration of offensive cyber space operations could follow the approach described above for integration into the offensive actions of the air force. The existing Air Operations Planning Process (AOPP) could be applied to cyber space operations as well when analysing targets and evolving a campaign plan. Such an approach would be easy to comprehend and implement since our war planning cells are familiar with the process. Irrespective of which targeting philosophy is applied while evolving the Concept of Operations (CONOPS), i.e. Warden's idea of "enemy as a system" or the "centre of gravity approach", at the analysis phase, and to arrive at the best weapon

to be employed, the planners ought to consider cyber as another tool/weapon in their arsenal. Such an approach would require little adaptation in integrating offensive cyber forces with offensive air action. The key element would be for the commander to articulate his preference for engaging the target and the extent of employment of the offensive cyber forces to achieve the desired effect. Whether the target is to be engaged by cyber alone or a combined cyber-air action, would be his call. The role of cyber in every conceivable aspect, i.e. shaping operations by deception or disruption of the enemy's information sphere or creating uncertainty in the opponent's decision matrix or a destructive effect or whatever else is to be conceived by the commander, would need to be clearly spelt out. Some unique cyber effects that could be employed are paralysing enemy AD and communication systems using malware, executing feints, selective computer destruction of combat systems through online manipulation and invading C2 systems of the enemy, to mention a few. In Operation "Orchard" the Israeli Air Force had used offensive cyber forces by employing electronic warfare technology like the "Suter network attack system" of the US Air Force and had fed false targets to manipulate the Syrian radars during its aerial strike on a suspected nuclear plant at the Al Kibar site in the Deir ez-Zor region of Syria on September 6, 2007. This example elaborates on the type of cyber effects that could form part of the commander's CONOPS and decided fairly early during the planning, as preparation of cyber forces is a long and arduous task. It involves penetrating the enemy cyber space to exfiltrate data, model the target and evolve the attack malware. **While it can be imagined that offensive cyber operations could play a key role in the early stages of the war to shape the battle space since it can be developed during peace-time, it is expected that the role of offensive cyber will increasingly provide opportunities for a significant impact throughout the air campaign as experience is gained.**

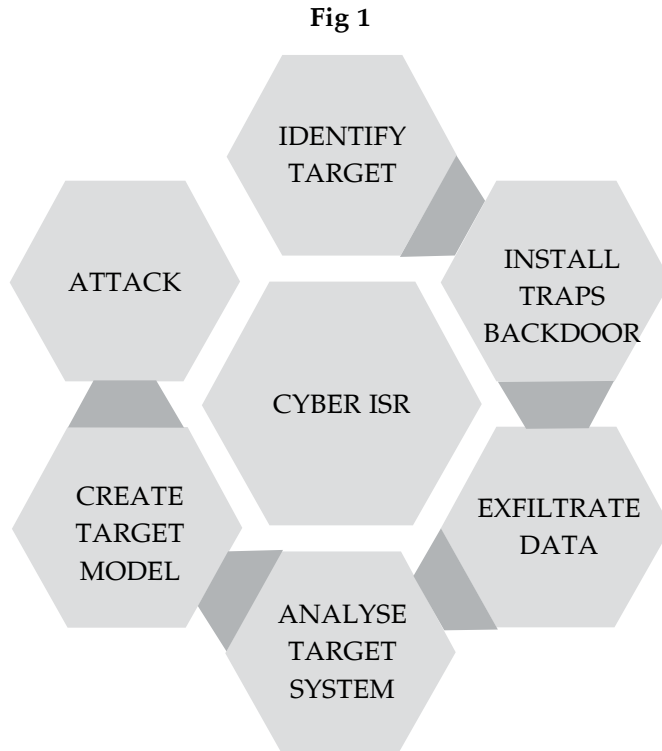
stages of the war to shape the battle space since it can be developed during peace-time, it is expected that the role of offensive cyber will increasingly provide opportunities for a significant impact throughout the air campaign as experience is gained.

EVOLVING OFFENSIVE CYBER FORCES

The ability to deliver offensive cyber space effects requires three critical elements i.e. target identification and characterisation; access to the target; and, tools to deliver the intended effects. This process entails a long preparation time and, therefore, cyber targets need to be determined early in the planning process. The first step is to carry out cyber intelligence of the enemy cyber space and get a sense of the information that travels and is stored on the digital and computer networks to map the operating environment.¹⁰ Thereafter, it is broken down into various layers for determining the hardware through which the information flows, its e-mail address, Internet Protocol (IP) address, detailing of information flow paths (links) and routing and storing digital information (nodes) to name a few.¹¹ In this manner, after prolonged surveillance and reconnaissance activities, the target is identified. After the target is identified, cyber personnel install cyber traps in the form of malware to enter its defences through the backdoor, i.e. penetrate the firewalls, etc. Thereafter, exfiltrate the data for subsequent analysis of its algorithms, protocols, codes and structure to create a target model in terms of its software architecture and then evolve the requisite cyber tools (techniques and procedures) for an attack. Fig 1 captures the essence of the process involved.

10. <https://www.airuniversity.af.edu/CyberCollege/Portal/Article/Article/1238539/isr-and-cyberspace/>

11. Ibid.



This description is not meant to oversimplify the process of evolving cyber forces or integrating cyber space operations into planning and execution. In fact, the whole process of evolving cyber forces is highly complex and technically challenging. The targets have to be worked upon for a long time and developed years in advance to be kept ready for launch. At the end of such activity, the preparation of cyber space target folders giving the details of targeting solutions developed for use to make mission plans is involved. The true genius of this entire effort and ability is the human operator. The availability of adequately trained and capable manpower emerges as a challenge. Presently, there is no cyber branch in the IAF, and officers with knowledge of the tactical planning aspects would have to be professionally developed to learn enough about cyber space and then integrate cyber space and air operations. Alternatively, the aeronautical engineering (electronics)

branch officers or airmen could carry out the cyber portion to be married by the operations branch officers into campaign planning. The second challenge is the technical capability of developing cyber forces as described above. Since target configuration and software are constantly upgraded, these cyber forces have to be modified or updated on an almost continual basis to prevent collateral damage or fratricide.¹²

DEVELOPMENT OF FULL SPECTRUM CYBER POWER

Having broadly discussed the need for defensive and offensive operations and how these may be integrated into our air operations, it clearly emerges that for a full spectrum cyber power, we would need to develop robust cyber ISR, cyber defence and cyber offence capability. Evolving cyber forces and a doctrine for their employment would depend on how the cyber-air capability is employed to accomplish the mission. The air force would need to work out tactics, techniques, procedures in the cyber space for its operations. In terms of targets, the air force could consider C2 centres, communication nodes, computers, ISR, logistics networks, maintenance networks, critical information storage systems, navigation and guidance systems of platforms like aircraft, ships, missiles, drones and precision-guided munitions, and assets in outer space and their supporting infrastructure. The list is endless and the task is daunting, but must start in earnest.

The IAF has an extensive cyber security policy in place since 2007 which was revised in 2012 and 2018. The policy covers the entire gamut of cyber activity including the AFNET, LAN, internet and weapon systems. It lays down in detail the various procedures to be adopted in the IAF's cyber space. This policy would form the first layer of security, as per the discussion in this article, as it elaborates on the cyber security posture that the IAF needs to adopt with respect to technology and emerging threats. Our cyber space would be a contested arena in any future war, as stated earlier, hence, developing cyber defensive forces as the second layer of defence would be imperative. The aim of cyber space defence is not only to obtain freedom to

12. Ibid.

operate in own cyber space but to protect the entire information environment to mitigate threats and vulnerabilities. The IAF ought not to be content in merely defending its cyber space, but must also, as a policy, employ cyber offence to support its own operations by manipulating, degrading, disrupting and destroying enemy infrastructure and/or capabilities. It must recognise that a cyber space attack, like all forms of attack, can be designed to generate effects in the physical domains.

CONCLUDING THOUGHTS

The intent of this article is to highlight the need for cyber space operations to be integrated with IAF operations, since availability of freedom to manoeuvre in cyber space would be imperative to win a future war. The IAF has laid out a security policy which serves well as the first layer of defence. It could now look forward to developing the entire gamut of actions to exploit cyber power in its entirety. For this, creating defensive and offensive cyber forces, along with robust cyber ISR emerges as the key operational construct. A way forward has been discussed. Cyber-air operations can create powerful synergy and there lies huge benefit in combining existing air concepts with cyber as a starting point. The availability of trained and qualified manpower would be a challenge that will have to be overcome. While this article has focussed on cyber space operations in support of air operations only, there is a broader implication of cyber security at the national level for which developing a policy, organisation and authority would be mandated to tie it all together. The armed forces play a key role in defending national security within their sphere and must, thus, be prepared to defend it in all domains, including cyber space. This implies creating situational awareness of the cyber space, cyber forces and a mechanism to integrate cyber space operations within the national framework to accomplish the assigned missions. The Indian Air Force would do well to take the lead, as its dependence on cyber space is absolute.

CHINA'S AVIATION INDUSTRY PULLING AHEAD, YET CRITICAL TECHNOLOGY CHALLENGES

ANIL CHOPRA

China conducted its biggest ever military parade on October 1, 2019, as part of its celebrations for 70 years of Communist Party rule. Some 580 pieces of military equipment and 160 aircraft participated.¹ These included the 5th Generation (Gen) fighter, the J-20, the latest strategic bomber-cum-aerial refueller, the H6-N, and the Z-20 medium lift helicopter, similar to the US UH-60 Black Hawk. A new advanced radar system that could 'detect jets and missiles', and the latest HQ-9B surface-to-air missiles capable of intercepting multiple air strike weapons in a complex electro-magnetic environment were showcased, among many others.

China's massive military modernisation is being matched by an equally phenomenal growth of its military industrial base. The clear focus is to counter the primacy of the US military in the region. For long, China was accused of acquiring technology by reverse engineering Russian systems² in clear

Air Marshal **Anil Chopra** PVSM, AVSM, VSM, VM (Retd) is a pioneer of the Mirage-2000 fleet, who has commanded a Mirage Squadron and the Aircraft and Systems Testing Establishment (ASTE) of the Indian Air Force (IAF). He retired as Air Officer Personnel. He was a member of the Armed Forces Tribunal, and member of the Executive Council of Jawaharlal Nehru University (JNU) for two years. He is also the recipient of the Global Gandhi Family Peace Medal for his work in J&K.

1. "China Celebrated 70 Years of Communist Party Rule", Zee News, October 1, 2019 at <https://zeenews.india.com/world/china-unveils-dongfeng-41-missiles-that-can-strike-us-in-30-minutes-2237836.html>.
2. Wendell Minnick, "Russia-China Su-35 Deal Raises Reverse Engineering Issue", *Defense News*, November 20, 2015 at <https://www.defensenews.com/air/2015/11/20/russia-china-su-35-deal-raises-reverse-engineering-issue/>.

China's usurping of the South China Sea, by reclaiming islands and turning them into military bases was a part of the grand strategy to extend its zone of economic and military influence. Air is the preferred means of extending reach with lethality, and even among the ships, the crown jewels are the aircraft carriers.

violation of intellectual property rights, or by acquiring top-end technology through cyber attacks, and espionage operations against Western firms. However, ever since it became an economic powerhouse, it has been in a position to invest in research and development. It has clearly focussed on platforms that will help it dominate the Western Pacific, military aviation and naval ship building. China's usurping of the South China Sea, by reclaiming islands and turning them into military bases was a part of the grand strategy to extend its zone of economic and military influence.

Air is the preferred means of extending reach with lethality, and even among the ships, the crown jewels are the aircraft carriers. As per the London-based International Institute for Strategic Studies, "Since 2014, China has launched more submarines, warships, principal amphibious vessels and auxiliaries than the total number of ships currently serving in the navies of Germany, India, Spain, Taiwan and the United Kingdom".³

China's aviation industry has also been leaping ahead. The People's Liberation Army Air Force (PLAAF) is still dominated by the Chengdu J-10 and Shenyang J-11/15/16 derivatives of the Russian Sukhoi Flanker family, although they have significant local avionics and weapons. The Y-9 turboprop and Y-20 jet airlifter are in serial production. Despite virtual disappearance from the media, China's FC-31 second stealth fighter jet is claimed to be proceeding smoothly and on schedule. Chinese armed drones have great potential to dig into Western markets. The Chinese military claims to have tested an unmanned single-engine biplane transport aircraft that successfully delivered cargo at a designated area.⁴

3. Nick Childs, "China's Naval Shipbuilding: Delivering on its Ambition in a Big Way", *IISS Military Balance*, Blog, May 1, 2018 at <https://www.iiss.org/blogs/military-balance/2018/05/china-naval-shipbuilding>.

4. "Chinese Military Tests Long-Range, Heavy Aerial Delivery Transport Aircraft", *Global Times*, June 23, 2019 at http://eng.chinamil.com.cn/view/2019-06/23/content_9536409.htm.

Despite great efforts and investments, the Chinese aircraft industry continues to struggle with critical technologies. China is still struggling to build reliable aircraft engines. It has been researching to develop thrust-vectoring aircraft engines for nearly two decades. At the 12th Zhuhai Air Show in November 2018, a J-10B, equipped reportedly with the indigenous thrust vectoring control nozzle, flew and performed aerobatic manoeuvres.⁵ China is scouting to acquire or support cash-strapped engine companies around the world. The Ukrainian aircraft engine factory, Motor Sich, is a contender. This huge Soviet-era company is one of the advanced military aircraft engine manufacturers in the world. Thirty-five per cent of the company's \$450 million in sales in 2018 went to China, making China the company's biggest destination for its aircraft engines. China is interested in Ukrainian technology beyond Motor Sich. It is hiring Ukrainian engineers also in the missile and aircraft-building sectors and taking them to China. There are still question marks on the airborne radar and stealth technologies. However, significant research is going on in state-owned universities and research institutes. Also, China has been pushing hard for arms exports, albeit mostly to relatively poor developing countries by offering price concessions, and attaching some political strings.

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AVIATION INDUSTRY OF CHINA

Aviation Industry Corporation of China

The Aviation Industry Corporation of China (AVIC) Ltd is a state owned aerospace and defence conglomerate ranked 151st in the Fortune Global 500

5. Kyle Mizokami, "The J-10 Fighter Plane Gets Thrust Vector Control", *Popular Mechanics*, November 7, 2018 at <https://www.popularmechanics.com/military/a24742661/chinas-j-10-thrust-vector-control/>.

list.⁶ It has over 100 subsidiaries, 27 listed companies and 446,613 employees across the globe. Established on April 1, 1951, during the Korean War as the Aviation Industry Administration Commission, after many systemic reforms, it got its current designation. AVIC was founded in November 2008 through the restructuring and consolidation of the China Aviation Industry Corporations I and II. Centred on aviation, its business units cover defence, transport aircraft, helicopters, avionics and systems, general aviation, research and development, flight testing, trade and logistics, assets management, finance services, engineering and construction, automobiles and more. AVIC purchased the American aircraft engine manufacturer Continental Motors in 2010, American aircraft manufacturer Cirrus in 2011, and American specialised parts supplier Align Aerospace in 2015. The major focus of AVIC is to efficiently develop indigenous military technologies, and to eventually compete with Airbus and Boeing in the civilian airline industry.

Chengdu Aerospace Corporation

The Chengdu Aerospace Corporation (CAC) is a subsidiary of AVIC. It was founded in 1958 in Chengdu, Sichuan province. It designed and now produces the J-10 lightweight multi-role fighter and the J-20 5th Gen jet fighter, both of which are considered the most advanced platforms in China's inventory. It also produces the CAC/PAC JF-17 Thunder lightweight multi-role fighter in cooperation with Pakistan. China is credited for being the second country in the world, and the first in Asia, to possess 5th Gen and stealth technology. CAC employs 20,000 workers. CAC earlier produced the FT-5 trainer, J-7, and the McDonnell Douglas MD-80 parts, and later began producing the Airbus A320 and Boeing 757 components, such as vertical and horizontal tails. The first flight of the Chengdu J-10 fighter in 1998 gave the company the ability to produce 3rd Gen aircraft. The plant also produced fuel tanks for Dassault Falcon 2000EX. The engine division of CAC produced the WP6 turbojet LM WP13 turbojet (a Chinese version of the Tumansky R-13 engine), and components for the Pratt & Whitney

6. Aviation Industry Corporation Of China, Fortune Global 500, <https://fortune.com/global500/2019/aviation-industry-corp-of-china/>

JT8D turbofan engines. CAC also manufactures the top end Pterodactyl 1 and Xianglong Unmanned Aerial Vehicles (UAVs).⁷

Xi'an Aircraft Industrial Corporation

The Xi'an Aircraft Industrial Corporation was established at Xi'an in 1958. It employs 20,000 personnel. Its main products are the MA-60, MA 600 and under development M700 turboprop airliners. It also built the JH-7 Flying Leopard twin-engine fighter-bomber, and the H-6 twin engine bomber (a Chinese upgraded variant of the Tu-16 Badger). Currently, the H-20 strategic bomber is under development. It also manufactures the Y-7H trainer and wings and fuselage of the ARJ21. The twin engine turboprop transports, the Y-7 and Y-14, and the four engine Y-20s are also manufactured here. It specialises in transport aircraft and has built many variants of the Y-8. The Y-9 was a stretched variant of the Y-8, with greater payload and was China's attempt to build a C 130 J class transport aircraft.

Changhe Aircraft Industries Corporation

The Changhe Aircraft Industries Corporation (CAIC) is the helicopter manufacturer based in the city of Jingdezhen in Jiangxi province. Changhe employs 4,300 employees in two production facilities. It has a joint venture with Agusta Helicopters and a working relationship with the Sikorsky Aircraft Corporation. A subsidiary factory is a major automobile company in China. Established in 1969, CAIC manufactures the WZ-10 attack helicopter, Z-8 heavy transport helicopter, and a few light utility helicopters. It also makes tail rotor pylons for the Sikorsky S-92 and fuselage for the Sikorsky S-76.

Hongdu Aviation Industry Group

The Hongdu Aviation Industry Group Ltd., based at Nanchang, was established in 1951 and employs 20,000 personnel. It built the Q-5 'Fantan' (exported under the designation A-5) single-seat dual-engine supersonic

7. "Chengdu (AVIC) Wing-Loong (Pterodactyl)", Military Factory, September 11, 2018 at https://www.militaryfactory.com/aircraft/detail.asp?aircraft_id=1030.

attack aircraft based on the MiG-19. The Q-6 was a variable sweep-winged attacker, similar to the MiG-23BN but was cancelled later. Also, it built the prototype of the J-12, a 1970 Chinese lightweight supersonic fighter that was abandoned. The group builds most of the Chinese trainers, including the JL-8 and L-15. It has also built the multi-use agriculture and forest aircraft, the N-5 and many multi-purpose helicopters of the MD series.

Guizhou Aircraft Industry Corporation

The Guizhou Aircraft Industry Corporation products include trainers, turbojets, UAVs, missiles and launchers. The JL-9 is a trainer based on the MiG-21U. The JJ-7 is the upgraded variant of the same. It also built the WZ-2000, Soar Dragon, and Harrier Hawk UAVs. Guizhou is also the plant to manufacture the WS-13 jet engine, used in the JF-17 and J-31 fighters.

Harbin Aircraft Industry Group

The Harbin Aircraft Industry Group (HAIG), was founded in 1952 at Harbin. It has 6,700 employees, and was set up to manufacture domestic civil planes. Initially, the plant made the Mi-4 Russian helicopters and H-5 light bomber, a copy of the IL-28. Later, it started making the indigenously designed Y-11 light twin-engine utility aircraft and Y-12 utility Short Take Off and Landing (STOL) transport variant of the Y-11. Harbin has also been producing the Legacy 650 and ERJ 145 regional jets in a joint venture with Embraer. It also manufactures the BZK-005 high-altitude, long-range UAV designed by Beijing University of Aeronautics & Astronautics, for use by the Chinese Navy.

Shanghai Aircraft Manufacturing Company

The Shanghai Aircraft Manufacturing Company is into manufacturing aircraft, parts and components, repair and overhaul, and many non-aerospace products. It is now part of the Commercial Aircraft Corporation of China (COMAC) which was established in 2008. It produced the ARJ21, Shanghai Y-10, MD-82, MD-83, MD-90 jet liners. It also manufactures the Airbus single

aisle family cargo door frame, Boeing 737 tail section assembly and Boeing 777 vertical stabilisers. It also makes the C919, a locally developed narrow-body twinjet airliner. The C919 was rolled out on November 2, 2015, and the aircraft's maiden flight was on May 5, 2017.⁸ The fourth prototype made its maiden flight in August 2019. Its first commercial deliveries are expected in 2021. The aircraft is to be powered by either the CFM International LEAP or ACAE CJ-1000 turbofan engines, and will be able to carry 156 to 168 passengers. It is intended to compete primarily with the Boeing 737 MAX and Airbus A320neo. As of August 31, 2018, COMAC reportedly had 1,008 commitments, including 305 firm orders, mostly from Chinese leasing companies or airlines. The Shanghai Vantage Airship Manufacturing Company has been making non-rigid airships; the Shenyang Sailplane Factory makes sailplanes and training gliders, including motorised ones. China has also been making light electric aircraft and motor gliders.

Aircraft Nomenclature

Chinese aircraft are prefixed with an alphabet denoting the type of aircraft in the Chinese language (Fig 1).

Fig 1: Chinese Aircraft Type Prefix

Prefix Alphabet	Aircraft Type
H	Bomber
J	Fighter
JH	Fighter Bomber
JJ	Fighter Trainer
JZ	Reconnaissance Fighter
Q	Ground Attack Aircraft
L/JL	Trainer
Y	Transport Aircraft
Z	Helicopter
E	Electric Aircraft

8. The C919 was rolled out on November 2, 2015, and the aircraft's maiden flight was on May 5, 2017 at <https://airlinerwatch.com/the-fourth-comac-c919-prototype-makes-its-maiden-flight/>

AVIC built the Chinese indigenous fighters J-8 and J-10 by reverse engineering or cut and paste designs from Russian aircraft. The J-11 was an Su-27 variant. The J-15 is a Chinese multi-role 4th Gen naval aircraft, and the J-16 is a 4th Gen strike aircraft.

Bombers

Among the bombers manufactured by China were the H-5, a copy of the Il-28, since retired. The H-6, a copy of the Tu-16, had many variants and the aircraft is still flying with the PLAAF. The H-6K is the cruise missile carrying modernised bomber variant. The H-20 is the Chinese stealth bomber under development. The JH-7 Flying Leopard is a two-seat, twin-engine fighter bomber in service with the PLAAF and PLA Navy Air Force (PLANAF). The latest variant, the JH-7E, was shown at the 2018 Zhuhai Air Show.

Fighter Aircraft

The Chinese started their fighter aircraft production with the MiG-9 and MiG-15 (J-2). Subsequently, they built many Chinese variants of Russian aircraft, the J-5 (MiG-17), J-6 (MiG-19), and J-7 (MiG-21). They developed the FC-1(JF-17) multi-role light fighter jointly with Pakistan. The Q-5 was a ground attack aircraft based on the MiG-19. AVIC built the Chinese indigenous fighters J-8 and J-10 by reverse engineering or cut and paste designs from Russian aircraft. The J-11 was an Su-27 variant. The J-15 is a Chinese multi-role 4th Gen naval aircraft, and the J-16 is a 4th Gen strike aircraft. The J-20 is a 5th Gen fighter and the J-31 is a 5th Gen stealth fighter under development.

Transport Aircraft

The Chinese have built many transport and passenger/communication duty aircraft. They initially license built the Yak-12 aircraft and Y-6 (Il-14). Thereafter, they made many on their own by reverse engineering. The Y-5 was a copy of the Russian An-2, Y-7 (An-24 copy), Y-8 (An-12 copy). The Y-9 was a multi-purpose variant of the Y-8. The Y-10 and Y-11 were small utility

aircraft. The Y-20 is a large multi-purpose transport aircraft (66 tons payload) which first flew on January 26, 2013, and was inducted into service in 2016. The Y-30 is a four-engine turboprop military transport aircraft under development, with a planned load of 30 tons. China is also building many mid-sized turboprop and jet airliners, and business jets. It is working on developing larger airliners with up to 400 seats like the C-939.

Helicopters

Chinese helicopter production began with the Z-5, a copy of the Mi-4. The Z-6 was a turbo shaft engine variant of the Z-5. The Z-8 was a license built variant of the Aérospatiale SA 321 Super Frelon, and the Z-9, a license built variant of the Eurocopter Dauphin. The Z-9WA was a utility-cum-reconnaissance variant. The WZ-10 is a Chinese attack helicopter. The Z-11 is a license built Eurocopter AS350, a single engine light utility helicopter. The Z-11WB is the reconnaissance variant. The EC-120 is a light utility helicopter through a joint venture with Eurocopter. The Z-12/15 is a medium transport helicopter of the 5/6-ton class for a range of military and civil requirements, built with Eurocopter's support. The Z-18 is a single-rotor helicopter with a tail rotor and non-retractable landing gear, based on the Avicopter AC313. It can carry 27 troops or 5 tons (11,000 lb) of cargo. The WZ-19 is a Chinese 4,250 kg, reconnaissance/attack helicopter variant of the Z-9, in service since 2012. China also operates the Sikorsky S70 medium utility helicopter. The Z-20 is a medium lift helicopter produced in China. It first flew on December 23, 2013. The 10 ton class helicopter can also operate from the Chinese aircraft carrier, the *Liaoning*. It is thought to be comparable to the US Sikorsky UH-60 Black Hawk helicopter, the civilian S-70 variant of which has been used by the People's Liberation Army (PLA) since 1984. Some sources suggest that the Z-20 is a copy of the Black Hawk and link

Some sources suggest that the Z-20 is a copy of the Black Hawk and link the design to the Black Hawk that was abandoned by the US Special Forces in Pakistan during the operation to kill Osama bin Laden on May 1, 2011.

the design to the Black Hawk that was abandoned by the US Special Forces in Pakistan during the operation to kill Osama bin Laden on May 1, 2011. China also makes many civil helicopters.

Trainers

China began making basic propeller trainers with the CJ-5 and CJ-6. It also made trainers for fighter aircraft like the J-5, J-6, and J-7. The JL-8 was the basic jet trainer-cum-attack aircraft developed with Pakistan. The JL-9 was the upgraded version of the J-7 trainer. The Xi'an-built specialised version of the Chinese Y-7, the HYJ-7 multi-purpose trainer is designed to provide training to the PLAAF pilots before transferring them to the bomber or transport units. The same aircraft is used to train the pilots and crew of the H-6 long range bombers. The Hongdu-Yakovlev CJ-7 (L-7) is a two-seat piston engine trainer aircraft jointly developed with Russia from the Yak-152. The L-15 Falcon is a supersonic advanced training and light combat aircraft built for the PLAAF and PLANAF as a Lead-In Fighter Trainer (LIFT).

MILITARY AVIATION: NEW DEVELOPMENTS

China's military aviation industry has advanced at an impressive pace over the past decade. Aircraft manufacturing has switched from poor middle quality reverse-engineered copies to conceptually good home-grown products. The Chinese military aircraft are not the best in their class, and the Chinese are conscious of that. They have come a long way in flight performance, though they are still catching up, rather than leading with new designs. However, they are good enough considering the PLA's military doctrine and mission requirements. China is clear that it has no alternative but to research and develop its own. Chinese systems can be classified as high average in capability, but average in reliability.

Current Developments: PL-15 Missile

The J-11B fighter jet became the latest user of China's self-developed world-

class PL-15 air-to-air missile.⁹ The J-20 stealth fighter jet had carried the same type of missile and made a public display at the Chinese Air Show 2018 in Zhuhai. Wei Dongxu, a Beijing-based military analyst, compared the PL-15 with the USA's latest AIM-120 missile.¹⁰ The US media outlet, the *National Interest*, claims that the PL-15's effective range could be much higher than the AIM-120's 180 km, but that could be an exaggeration, according to Wei. The PL-15 is also equipped with an Active Electronically Scanned Array (AESA) radar, which makes evasion very difficult. Wei suggests that the technology of the PL-15 has matured, so it can now be put on a variety of platforms. Equipped with the missile, the J-11B's aerial combat capability can be greatly boosted, the report said. Dubbed by Chinese military observers as the "aerial trident," the J-20, J-16 and J-10C fighter jets can all carry the PL-15 missiles.

Advances in JF-17

The Pakistan Air Force (PAF) has over a 100 JF-17 'Thunder' aircraft. The development and production of the JF-17 Block 3 is underway, according to Yang Wei, a Chinese legislator and chief designer of the China-Pakistan co-developed fighter jet, as he aims to enhance the jet's informatised warfare capability and weapons.¹¹ The JF-17 Block 3 is expected to be fitted with an AESA radar, and a helmet-mounted display and sight system. Pakistan, the main user of the JF-17, could further share information between the fighter and other platforms. China claims that with the new upgrade, the JF-17 Block 3 could match an improved version of the F-16 fighter jet. The upgrades like the new AESA radar are still under development, but the airframe, which remains roughly the same, has been given the production go-ahead. The JF-17 is often described by its manufacturer and military observers as an

9. "China's Most Powerful Air-to-Air Missile Equipped on Warplanes", *Defense Aerospace*, April 1, 2019 at http://www.defense-aerospace.com/articles-view/release/3/201268/china%27s-most-powerful-air_to_air-missile-equipped-on-warplanes.html.

10. Chen Zhuo, "China's Most Powerful Air-to-Air Missile", *Global Times*, March 26, 2019 at http://english.chinamil.com.cn/view/2019-03/26/content_9459759.htm.

11. Liu Xuanzun, "JF-17 Block 3 jet Expected to be Fitted with Active Electronically Scanned Array Radar", *Global Times*, March 11, 2019 at <http://www.globaltimes.cn/content/1141710.shtml>.

advanced cost-effective fighter. It was contending with India's Tejas and South Korea's FA-50 in Malaysia's new fighter jet purchase plan. Myanmar and Nigeria have reportedly purchased the Chinese-Pakistani warplane.

J 20: Further Developments

China has plans to develop its most advanced stealth fighter jet, the J-20, into a bomber, Electric Warfare (EW) aircraft and a carrier-based variant. Reports suggest that a two-seat version of the warplane is under development. All current stealth fighter jets feature a single seat, so the potential J-20 variant might become the first two-seat stealth fighter jet in the world. On a highly digitalised future battlefield, large amounts of information can easily overflow the entire control panel of an aircraft. Having a second pilot and a second panel sharing part of the work will be advantageous, the Chinese feel. *The People's Daily* reported that in March 2018, Yang Wei, the chief designer of the J-20 said that the aircraft will be serialised and its combat capability will be constantly upgraded.¹² The current J-20 is a basic version, and it is by design highly customisable. Song Zhongping, a military expert and TV commentator, has claimed, "Outfitting the warplane with a second seat allows it to play multiple roles in addition to winning air superiority", adding, "The two-seat version can be further developed into a tactical bomber or EW aircraft".¹³ Although the FC-31, another Chinese stealth fighter jet, is widely expected to become China's next generation carrier-borne fighter jet, Song believes the J-20 can also be modified to fulfil the role. An upgraded J-20 will have improved avionics and fire control systems, more powerful engines and more weapons payload.

Advances in J-16

China's multi-role fighter jet, the J-16, is now covered by a coating that can provide near stealth capability and the jet is now confirmed to be able to

12. Liu Xuanzun, "J-20 Variant May be World's First Two-Seat Stealth Fighter", *Global times*, January 16, 2019 at <http://www.globaltimes.cn/content/1135957.shtml>.

13. "China's Most Advanced Stealth Fighter Jet J-20" at <https://www.sinodefenceforum.com/j-20-5th-gen-fighter-thread-vi.t8169/page-459#post-539691>.

carry all types of air-to-surface weapons in precision strikes, China's state broadcaster revealed on March 18, 2018.¹⁴ Brigade Commander Jiang Jiaji, a PLAAF pilot, told China Central Television (CCTV) that the silver-gray paint covering the J-16 is a kind of cloaking coating that gives the warplane a certain stealth capability, making it nearly invisible to the naked eye and electromagnetic devices. The jet's camouflaged colour scheme makes the aircraft blend with the sky and sea. Jiang also revealed that all types of Chinese air-to-surface weapons currently in service can be installed on the J-16. The J-16 is reportedly capable of carrying at least eight tons of weapons. Although the J-20 is China's more advanced fighter jet, the PLAAF still needs the J-16 as the two types of fighter jets can complement each other.

J-10B Upgrade

The J-10B is being equipped with an engine capable of thrust vectoring control, thus, allowing extreme manoeuvrability. The manufacturer of the J-10B, AVIC, said in a statement at the 2018 Zhuhai Air Show that the thrust vectoring control technology used on the aircraft was an independently developed innovation, making China one of the few countries in the world to master this key technology.¹⁵ The engine for the aircraft was widely regarded as a weakness in China's military development, but the country seems to be catching up, and the state-owned Aero Engine Corporation of China is continuing to work on the engines to provide more thrust and prolong the life span. Despite impressive displays at the air show, China is still 20 to 30 years behind the US in the overall design of engines, the experts said. The J-20's chief designer Yang Wei said in a CCTV programme that the thrust vectoring control engine used on the J-10B can be installed on any fighter jet any time, if needed, including the J-20.¹⁶ Much like the

14. Li Jiayao, "J-16 Fighter Jet Stealth-Capable, Able to Carry all Types of Chinese Weapons", *Global Times* at http://eng.chinamil.com.cn/view/2019-01/30/content_9416890.htm.

15. Kyle Mizokami, "The J-10 Fighter Plane Gets Thrust Vector Control", *Popular Mechanics*, November 7, 2018 at <https://www.popularmechanics.com/military/a24742661/chinas-j-10-thrust-vector-control/>.

16. Huang Panyue, "Chinese People Amazed by Countries Rapid Development in Fighter Jets", *Global Times*, November 26, 2018 at http://eng.chinamil.com.cn/view/2018-11/26/content_9355534.htm.

Pakistan has shown interest in China's J-10 fighter jets and the Pakistan Chief of Army Staff Qamar Javed Bajwa sat in a J-10C during the "Shaheen-VII" China-Pakistan joint air exercise at the end of 2018. However, the final decision on the purchase of the J-10 by Pakistan is still to be taken.

US Air Force (USAF), with its mix of stealthy and non-stealthy fighters, the PLAAF is developing a two-tier fighter fleet. Alongside a handful of radar-evading J-20s, Beijing is acquiring hundreds of more-conventional J-10s. The single-engine, single-seat J-10 first flew in 1998 and entered frontline service in 2003. Featuring a tailless delta wing and canards, the 51-ft-long J-10 externally is similar to the defunct Israeli Lavi fighter. The 2018 edition of the Pentagon's annual report on Chinese military capabilities describes the latest J-10C variant as an "advanced fourth generation fighter armed with the latest weapons".¹⁷ As of late 2017, the Chinese Air Force possessed around 260 J-10s, according to Flight Global's annual survey of world air arms. The J-10s account for 15 percent of Chinese combat aircraft and nearly half of the roughly 600 Chinese warplanes that, in 2018, the US Defence Department considered modern. The new J-10C model, which reportedly entered frontline service in 2018, has a new engine inlet that apparently reduces the plane's radar signature. It may also have an active electronically scanned array radar. In 2018, the US military possessed no fewer than 2,800 fighters, including more than 900 F-16s and hundreds of F-22 and F-35 stealth fighters.

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17. David Axe, "Forget Stealth Fighters and Aircraft Carriers: America Should Fear China's J-10 Fighter", *The National Interest*, August 25, 2019 at <https://nationalinterest.org/blog/buzz/forget-stealth-fighters-and-aircraft-carriers-america-should-fear-chinas-j-10-fighter>.

happens, the orders are likely to be small. Europe's Typhoon and Rafale fighters are considered expensive. In this context, the Chinese feel that the J-10C fighter jets could be attractive.

Next Generation Fighter

After the successful J-20 fighter, China does not want to fall behind in the global race towards the 6th Gen fighter jets and is expected to build its own next-generation fighter jets by 2035, Wang Haifeng, chief architect at Chengdu Aircraft Research and Design Institute, who also participated in the development of the J-20 and J-10, said in a periodical.¹⁸ Some of the new features of a 6th Gen fighter jet would include the ability to command drones, artificial intelligence and even higher stealth capability through aerodynamic design, the periodical reported. New technologies, such as laser, adaptive engines, hypersonic weapons and swarm warfare, might also be part of the new aircraft, Wang said, noting that China will choose some of these features and add others that best suit China's needs. France and Germany announced that they will jointly build a next-generation combat jet system, which is expected to be operational by 2040. The UK unveiled its 6th Gen fighter jet development programme named Tempest in July 2018, and will invite India to join its co-development aircraft programme, as reported in the media. Other countries including the US, Russia and Japan are also reportedly developing their own 6th Gen fighter jets. Although they remain in the concept stage, the new fighters are likely to emerge in the 2030s or 2040s. China has yet to officially reveal a plan on its next-generation fighter jet, which hardly comes as a surprise as the country seldom announces any in-development weaponry; it may have

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18. Liu Xuanzun, "China Eyes Building Next-Generation Fighter Jets by 2035", *Global Times*, February 11, 2019 at <http://www.globaltimes.cn/content/1138454.shtml>.

already started related research and development. China believes in having one generation in service, a new one in development and a next-generation under study. Now that the J-20 is already in service, the development for a new aircraft is also underway. The generational standards for fighter jets have been defined mainly by the Western countries but not future standards, said the J-20's chief designer Yang Wei, noting that China will design very different aircraft in the future through true innovation. China has also constructed a 6,620-ton, 17,000-cubic-metre FL-62 continuous transonic wind tunnel that will be critical in "shaping China's future fighter jet," said a statement released by the Aviation Industry Corporation of China in September 2018.

Y-20, The New 'Heavy'

"The Y-20 can serve as a general platform from which a variety of variants can be derived," Tang Changhong, a Chinese political advisor and chief designer of the Y-20, said at a press conference on March 12, 2019.¹⁹ Tang's remarks came amid reports and predictions made by military experts since 2018 that China was developing the Y-20 variants, including an aerial tanker and an early warning aircraft. According to Feng Wei, a Chinese legislator and Y-20 pilot, "It will be refreshing to see the Y-20 this year and people won't be disappointed". With a take-off weight of 200 tons, the Y-20 can stay aloft for extended periods, making it a great basic platform for tanker and early warning aircraft. Possible variants may also include a mobile hospital and an electronic warfare aircraft. There is speculation that the Y-20 might also replace its current Russian engines with domestically made WS-20 engines in 2019. "The Y-20 has now entered the formal mass production stage, and intensive regular training with the military is going according to plan," Tang said.

China is in urgent need of an aerial refuelling tanker that has a larger fuel capacity than the HU-6, a tanker developed from the H-6 bomber, for its air force to become a strategic one. Although China also operates

19. Liu Xuanzun, "China's Y-20 Large Transport Plane to Spawn Several Variants", *Global Times*, March 12, 2019 at <http://www.globaltimes.cn/content/1141794.shtml>.

a few Russian Il-78 tankers, which are much larger than the HU-6, Russia was reluctant to sell more at a reasonable price, leading China to decide to develop its own large tanker. The Y-20 is of similar size to the Russian Il-76 transport aircraft, on which the Il-78 is based. The Y-20 began service in the PLAAF in 2016.

Heavy Helicopters

The 40-ton class heavy helicopter, jointly developed by China and Russia, is expected to be delivered by 2032, said Wu Ximing, a Chinese political advisor and chief designer of helicopters for the AVIC.²⁰ “Russia is more experienced in the transmission system when it comes to 40-ton class helicopters, as Russia’s Mi-26 is of the 56-ton class. Our goal in the cooperation is to learn from Russia’s strong points and close the gap,” Wu said. Wu accepted that China lacks experience in technologies related to the transmission system. After four years of negotiations, Russia’s state corporation, Rostec, has agreed to sign the contract. Under the contract, at least 200 heavy helicopters will be built in China. China would be responsible for the helicopter’s design and production, and Russia would be acting as a technical partner. Dubbed the advanced heavy lift helicopter, it would carry a payload of 15 tons, have a range of 630 km and a top speed of 300 km an hour. China will have a complete helicopter family ranging from the 500-kg class to the 40-ton class, Wu said.

Unmanned Aerial Systems

China’s domestically developed, made-for-export Wing Loong series of drones have fired more than 3,000 rounds of live munitions with an overall accuracy higher than 90 per cent, the Chinese media has reported.²¹ Wing Loong is an armed reconnaissance drone capable of delivering precision

20. Aishwarya Rakesh, “China-Russia Heavy Helicopter To Fly By 2032”, Defence World Net, August 29, 2019 at https://www.defenseworld.net/news/25369/China_Russia_Heavy_Helicopter_to_Fly_by_2032_Deal_Signed_at_MAKS_2019#.Xa740pIzbiU.

21. “Chinese-Built Armed Drones have Fired 3,000 Rounds of Weaponry”, *The Week*, April 2, 2019 at <https://www.theweek.in/news/world/2019/04/02/china-armed-drones-weapons.html>.

strikes using air-to-ground missiles, often likened to the US' MQ-1 Predator and MQ-9 Reaper drones. As of December 2018, 100 Wing Loong series drones had been delivered for export.²²

A video featuring China's flying saucer-like stealth drone, the Sky Hawk, was shown for the first time on CCTV in January 2019.²³ It has been developed by the China Aerospace Science and Industry Corporation. Featuring a "flying wing" aerodynamic design similar to the US B-2 stealth bomber, the Sky Hawk is a high-altitude, long-range and high-speed unmanned aerial vehicle capable of conducting reconnaissance and patrol missions in hostile environments. Another Chinese stealth drone with a 'flying wing' design, the CH-7, developed by the China Aerospace Science and Technology Corporation, was also on display at the last Zhuhai Air Show. Its 22-metre wingspan makes it significantly larger than the Sky Hawk, providing another choice for domestic and international users. The US has developed the X-47B stealth drone and run tests on aircraft carriers. The Sky Hawk will also operate on China's future aircraft carriers that will use electromagnetic catapults. China's new strategic bomber, the H-20, is expected to also use a 'flying wing' aerodynamic design to gain stealth capability and other benefits.

Capable of delivering precision bombardment, the weirdly shaped Chinese helicopter drone Blowfish A2 sparked interest from many countries' militaries following its flight demonstration at the 15th Langkawi International Maritime and Aerospace Exhibition (LIMA) in Malaysia held in March 2019.²⁴ The 1.87-metre-long, 0.62-metre, tall helicopter drone has a maximum take-off weight of 38 kg and is capable of carrying a 12 kg payload, says the Guangdong-based Zhuhai Ziyun UAV company, the manufacturer of the drone. The Blowfish A2 can carry radar, jamming devices, guns or

22. "China Delivered 100th Wing Loong Unmanned Aerial System for Export", Defence Blog, December 26, 2018 at <https://defence-blog.com/news/china-delivered-100th-wing-loong-unmanned-aerial-system-for-export.html>.

23. Jesse Johnson, "China Releases First Video of a Sky Hawk, its Latest Stealth Drone, in Flight", *The Japan Times*, January 6, 2019 at <https://www.japantimes.co.jp/news/2019/01/06/asia-pacific/china-releases-first-video-sky-hawk-latest-stealth-drone-flight/#.Xa77851zbIU>.

24. Liu Xuanzun, "Oddly Shaped Chinese Combat-Ready Helicopter Drone", by *Global Times*, April 2, 2019 at <http://www.globaltimes.cn/content/1144390.shtml>.

bombs under its spine, and has a maximum speed of 130 km per hour. A video shows the drone dropping four bombs, which detonated some metres above the target, as the guided explosions accurately scorched a wide area. The drone is available for export, and many countries, including Pakistan, have reportedly shown interest. Combat-ready helicopter drones made by Ziyang now operate in four countries in the Middle East, Southeast Asia and Africa, the representative said, without naming the clients. AVIC is also developing helicopter drones including the missile-carrying AV500.

AVIC expects to produce 100 high-end drones per year by 2025. AVIC also announced that it has established a new subsidiary AVIC (Chengdu) Unmanned Aerial Vehicle System Company, focussing on the drone business, which Chinese military experts believe will help AVIC become even more competitive on the international market. AVIC now offers products like the Wing Loong armed reconnaissance drone, the Cloud Shadow high-altitude drone, the AV500 unmanned helicopter, and the Yaoying remote sensing drone. The establishment of the subsidiary shows that AVIC takes the drone business very seriously, and the move is also motivated by the strong demand from the international market. "The US' General Atomics is the market leader in the international drone industry. I hope that our new company can surpass it," Lai Zhiyong, an employee at AVIC (Chengdu) Unmanned Aerial Vehicle System Co. Ltd., says.²⁵ He notes that the reason behind the success of the Chinese drone on the international market is its high quality and low pricing, and that China continues to make rapid progress in related technologies. Countries like Egypt, Indonesia and Serbia are operating the Wing Loong I drone. The Wing Loong I-D, the new Wing Loong series drone, uses an all composite material structure, and made its maiden flight in January 2019.

Electronic Warfare

China has also reportedly developed a new type of electronic warfare aircraft with extra antenna installations. The aircraft appears to have been

25. Yao Jianing, *Global Times*, December 27, 2018 at http://eng.chinamil.com.cn/view/2018-12/27/content_9389500.htm.

The Type-002 aircraft carrier has reportedly been fitted with a new generation of phased array radar system, optimised air traffic command room and flight deck. Its carrier aircraft will also be a new generation of the ship-borne J-15 fighter jet, equipped with the phased array radar. That translates into considerably enhanced combat capability.

developed from the Y-9, says Wei Dongxu, a Beijing-based military analyst.²⁶ The Y-9, a medium-sized tactical transport plane has been modified, including as an early warning aircraft, reconnaissance plane and anti-submarine aircraft. The new variant visibly has a hemispheric radar dome under its chin, two large antennas on each side of the plane, an antenna on each side of the tailfin and an electronic warfare pod on top of the tailfin. It could effectively monitor the enemies' radio communication and intercept their radar signals. It can also deliver electronic suppression, supporting China's aerial

strike formations by jamming and paralysing hostile air defence systems. However, more aggressive missions would be supported by the fighter class of EW aircraft. The aircraft is likely to be designated the GX-11.

Aircraft Carriers

The Type-002 aircraft carrier has reportedly completed several sea trials. Resembling the *Liaoning*, the new aircraft carrier has also been fitted with a ski-jump assisted short take-off system. The Type-002 aircraft carrier has reportedly been fitted with a new generation of phased array radar system, optimised air traffic command room and flight deck. Its carrier aircraft will also be a new generation of the ship-borne J-15 fighter jet, equipped with the phased array radar. That translates into considerably enhanced combat capability.

Having already designed China's current aircraft carrier-borne fighter jet J-15, Shenyang Aircraft Design Institute is developing a new carrier-based warplane based on the FC-31. The FC-31 is a 4th Gen medium-sized stealth fighter jet originally intended for export. The FC-31 made its public debut

26. Chen Zhuo, "New Aircraft Together Intel in S. China Sea", *Global Times*, March 7, 2019 at http://eng.chinamil.com.cn/view/2019-03/07/content_9444106.htm.

flight at the Zhuhai Air Show in 2014, but went relatively quiet after that. Multiple changes and upgrades are being made to the FC-31, allowing it to be used on an aircraft carrier. China's third aircraft carrier is widely expected to be equipped with an electromagnetic catapult, and likely to house the stealth fighter jet.

Su-30 MK2: Anti: Shipping Role

China unveiled a set of photos of the Chinese People's Liberation Army Navy's (PLAN's) Su-30MKK fighter jets' on January 6, 2019.²⁷ These photos 'inadvertently' revealed a Su-30 MK2 fighter preparing to take off; the aircraft was mounted with a Chinese PL-12 air-to-air missile. The structure of its total payload has been enhanced to 12 tonnes. This indicates that China has already been able to modify the Su-30MKK's fire control system to give it the capability to use China's indigenous weapons. The next would be the Su-30 MK2 fighter jet carrying the YJ-12 and YJ-18 anti-ship cruise missiles. The Su-30MKK's maximum take-off weight has also been increased. Its maximum range is almost 4,000 km, and, therefore, it can patrol the entire South China Sea with the support of tanker aircraft. The Su-30MKK fighter jet, H-6 strategic bomber and JH-7 fighter-bomber together shoulder the responsibility of China's long-range anti-ship attack tasks. The Su-30MKK fighter jet has three 2-ton heavy hanging points and, therefore, can mount three YJ-12 supersonic anti-shipping cruise missiles.

PLAN's New VTOL Drone

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The PLAN deployed a new Vertical Take-off and Landing (VTOL) fixed-wing drone on a guided missile destroyer in an exercise in the South China Sea in late February 2019. The drone is likely to carry out reconnaissance and search missions at longer ranges for destroyers and frigates.

27. Huang Panyue, "With Modified Fire Control System, China's Su-30", China military online, February 1, 2019 at http://eng.chinamil.com.cn/view/2019-02/01/content_9420175.htm.

late February 2019 for the first time.²⁸ The drone took off from the helicopter deck of the *Lanzhou*, a Type 052C destroyer. The drone has a triple-fuselage design. The left and right fuselages each have four propellers: two on top, two at the bottom. A larger propeller is installed at the rear of the aircraft. "The eight smaller propellers can provide the lift needed for VTOL, and the larger propeller provides thrust", it was reported. The new drone has combined the advantage of a rotorcraft and a fixed-wing aircraft. The drone appears to have a wing span of about 4 metres, allowing it to be stored in a helicopter hangar. The drone is likely to carry out reconnaissance and search missions at longer ranges for destroyers and frigates. The drone could also guide artillery fire from warships and conduct damage assessment during an amphibious landing operation.

Multiple Terahertz Radiation Radar

Chinese arms companies recently made multiple terahertz radiation radar systems with a technology seen by experts as an efficient air-to-ground reconnaissance tool and a potential counter to stealth aircraft. The prototype radar was successfully developed by the China Electronics Technology Group Corporation (CETC), and a second-generation prototype is already in development.²⁹ The CCTV report said that terahertz radiation has wavelengths between those of infrared rays and microwaves, a wide spectrum that would render current stealth technologies obsolete, making the radar able to detect stealth aircraft. Stealth aircraft usually use composite materials and radar wave-absorbing coatings, so normal radars cannot effectively detect them. Terahertz radiation, on the other hand, could penetrate those materials and expose metallic parts within the aircraft, as per Wei Dongxu. Experts point out that the terahertz radiation decays very fast in the air, meaning that the effective range of the radar is likely low and not sufficient for detecting an advanced stealth fighter jet in time

28. Li Jiayao, "Rare VTOL Drone Deployed on PLA Destroyer", *Global Times*. February 28, 2019 at http://english.chinamil.com.cn/view/2019-02/28/content_9435911.htm.

29. "China Develops New Electronic Warfare Aircraft", *Defence World Net*, March 11, 2019 at https://www.defenseworld.net/news/24435/China_Develops_New_Electronic_Warfare_Aircraft#.XbEci1UzbIU.

before it launches attacks from beyond visual range. The China Aerospace Science and Industry Corporation (CASIC) had earlier developed China's first terahertz radiation video synthetic aperture radar, the Beijing-based newspaper *Science and Technology Daily* reported in December 2018. The CASIC radar can see through complicated environments like smoke, smog and dim lights, and can efficiently detect ground infantry targets in camouflage and disguise, and deliver precision strikes.

Early Warning Radar Technology

The editor of the *China Daily* Li Jiayao wrote on March 18, 2019, "China is a major arms exporter, but its image in the international weapons market has long been linked to old, second-tier products sold at relatively low prices".³⁰ Domestic defence technology companies have been sparing no effort over the past several years to improve their reputation by promoting modern, advanced products featuring the latest technology. One recent effort is an airborne early-warning and control aircraft. Hu Mingchun, head of the Nanjing Research Institute of Electronics Technology in Jiangsu province, notes that there are only a few nations including China, the United States and Israel, that can design, build and export such cutting-edge hardware as early-warning planes. The KLC-7 Silk Road Eye developed by his institute was a generation ahead of its rivals in the global market, he has claimed. According to Hu, the KLC-7 integrates a mechanical scanning system with active electronically scanned arrays and features the latest digital technology and processing capacity. The system boasts better anti-jamming functions and a longer detection range. The Electronics Institute in Nanjing, which is part of the state-owned defence giant China Electronics Technology Group Corp, is the country's top developer of military surveillance radars. Its products have been sold to more than 20 nations in Africa and Asia, it said. It designed and manufactured the radars mounted on the ZDK-03 early-warning aircraft that China exported to Pakistan. In a picture released by China Electronics Technology Group Corp, the Silk Road Eye appears

30. Li Jiayao, "World Class Military Plane to be Exported", *China Daily*, March 18, 2019 at http://english.chinamil.com.cn/view/2019-03/18/content_9452128.htm.

similar to the ZDK-03, which means it is also mounted on the Y-9 turboprop transport plane built by AVIC.

AVIATION INDUSTRY COMES OF AGE

The Chinese defence industry is growing rapidly, with a handful of Chinese firms displacing Western defence powerhouses, Hu writes. The appearance of eight Chinese defence firms among the top 25 comes as China invests heavily to upgrade its military and build a world-class fighting force. Till 2018, not a single Chinese company had even cracked the world's top 100 defence firms, according to a list published annually by *Defense News*. In 2019, six Chinese defence firms were among the world's top 15, with Chinese companies occupying eight of the top 25 spots. AVIC, with its annual defence revenue close to US\$ 25 billion, ranks fifth, outpacing US and UK defence giants General Dynamics and BAE Systems. AVIC, the top Chinese company on the list, trails closely behind Raytheon and Northrop Grumman, the two leading US defence firms. AVIC is responsible for the development of China's 5th Gen J-20 fighter and the new H-20 stealth bomber, among other projects.

"AVIC has been developing Wingman drones and an unnamed flying wing stealth drone was showcased at the 2018 Zhuhai Air Show", reported Liu Xuanzun.³¹ The USA and Russia already have drones that will accompany manned fighters and China is conscious that it must not get left behind. The USAF will induct the XQ-58 Valkyrie drones to fly in formation with the F-15EX and F-35 by end 2019. Similarly, Russia has just released footage of the first flight of the S-70 Okhotnik stealth assault drone to be paired with the Su-57 for joint missions. AVIC has already developed the Dark Sword stealth drone of the size of a fighter aircraft. The Sky Hawk and Sharp Sword are other stealth drones.

'MADE IN CHINA 2025' GOALS

"China wants its commercial aircraft to supply 10 per cent of the domestic

31. Ryan Pickrell, "China's Defense Industry is Exploding Onto the Scene as its Top Arms Makers Push Past Western Powerhouses", *Business Insider*, July 23, 2019 at <https://www.businessinsider.nl/6-of-the-worlds-top-15-defense-firms-are-chinese-2019-7/?jwsourc=cl>.

market and its jetliners to account for up to 20 per cent of the global market by 2025", writes Amanda Lee.³² When the C919, China's indigenous long-haul airliner, successfully completed its maiden flight in May 2017, officials were quick to announce that the country was edging closer to clinching the "crown jewels" of the modern aircraft manufacturing industry, and was also carrying the weight of the nation's ambition to be a major player in the global aviation industry. China's aviation market is expected to overtake that of the US as the world's largest by 2022, and the country is estimated to need over 7,000 planes in the next 20 years. Being able to make its own would not only help disentangle Beijing from the political complications of having to deal with the global manufacturing duopoly of Boeing and Airbus, but would also be a statement that it had the technological prowess to match its economic might. "China is playing the long game, it's not about the 2020s. China is looking at the next 20, 30 or 40 years." says Kevin Michaels, managing director of AeroDynamic Advisory, an aerospace and aviation consultancy. China's aviation industry has received over 800 orders and options to buy the C919 as of June 2019, despite the fact that it is not expected to enter operation until at least 2021 and that only 50 per cent of the components are currently domestically produced. Among the obstacles the country faces in becoming an aviation power are its lack of expertise in avionics, materials technology and aerodynamics, and, most crucially, engines. Experts have estimated that China's jet engine technology is about 20-to-30 years behind its competitors. The C919 currently runs on engines from CFM International, a joint venture between GE Aviation of the US and France's Safran Aircraft Engines. Beijing has invested Yuan 100 billion (US\$ 14.4 billion) in 2016 under the 'Made in China 2025' (MIC2025) plan to establish the Aero Engine Corporation of China (AECC), which will build the CJ-1000A turbofan jet engine to power the C919. The USA has put brakes on the transfer of critical technologies. In fact, China has spent less than US\$ 1 billion on 12 aviation-related acquisitions in the US over

32. Liu Xuanzun, "Wingman Drones Become New Trend for Fighter Jets", *Global Times*, August 11, 2019, <http://www.globaltimes.cn/content/1161030.shtml>

However, China's induction of its own 5th Gen air superiority fighter, the Chengdu J-20 in 2017, which preceded the entry of the Su-57 into service, marked the first aircraft of its generation to complete development outside the United States.

the decade up to 2017, according to estimates by the US think-tank Rand Corporation. Meanwhile, COMAC has 16 joint ventures with foreign firms, including GE Aviation, Honeywell, Parker Aerospace and Liebherr, and is also building a larger twin-aisle plane, the C929, with a Russian company, but it remains an uphill task as a whole in the form of a new-found US hostility to it. COMAC is yet to apply for certification for the C919 from the US Federal Aviation Administration, without which it cannot access the US market.

Further Russia Fighter Offers

Since the Soviet Union's collapse, China has been a leading client for high-end Russian military hardware. Such imports had played a key role in revolutionising China's aerial warfare capabilities, in particular during the 1990s, with acquisition of the most capable Russian air defence systems, air-to-air missiles and air superiority fighters available, but by the 2010s the reliance on high-end Russian equipment was reduced considerably. Russia's inability to market more than two dozen of its latest Su-35 fighter jets in 2015 was despite an offer for these to be accompanied by generous technology transfers. Upon announcing plans for the export of Russia's Su-57 5th Gen air superiority fighter at the 2019 LIMA exhibition in Malaysia, Kladoy Viktor of Rostec, the Russian state conglomerate for arms exports, mentioned the aircraft's potential export destinations.³³ In the next two years, China will make a decision to either procure additional 4th Gen ++ Su-35s, or build the Su-35 within China, or, alternatively, procure the Su-57E, he said.

33. Amanda Lee, "China's Aviation Industry has a Steep Climb to 'Made in China 2025' Goals", *South China Morning Post*, October 29, 2018, <https://www.scmp.com/business/article/2170746/chinas-aviation-industry-has-steep-climb-made-china-2025-goals>

However, China's induction of its own 5th Gen air superiority fighter, the Chengdu J-20 in 2017, which preceded the entry of the Su-57 into service, marked the first aircraft of its generation to complete development outside the United States. China also preceded Russia in its deployment of aircraft with active electronically scanned array radars, which are currently mounted on its J-20 and J-10C fighters, as well as its deployment of next generation air-to-air munitions with the entry into service of the PL-15. While the Su-35 did field a number of technologies that China's own defence sector had yet to develop, including the three-dimensional thrust vectoring AL-41F-1S engines, these technologies are expected to have been mastered by the Chinese military aviation by 2022 and deployed on the upcoming J-11D. Should the J-11D programme succeed, China would have little reason to purchase further Su-35 aircraft or seek to establish production of the platform domestically, as Director Klodov has suggested. The Su-57's internal weapons payload is much larger than that of the J-20, deploying eight long range K-77 or R-37 long range air-to-air missiles. That also gives the Su-57 a considerably longer air-to-air engagement range compared to the J-20, with the K-77 missile retaining a range of over 193 km. The Su-57's internal missile bays can also deploy the R-37 with a 400 km range—designed specifically to target tankers, Airborne Warning and Control Systems (AWACS), and other vital support systems. The Su-57 can also fire modulated laser beams at incoming missiles' seekers to blind them. These are all capabilities that existing Chinese fighters, including the J-20, lack entirely. The Russians claim that the Su-57 outclasses the J-20 across the spectrum. With a large scale production plan of the indigenous J-20, the Su-57 may be ruled out. At best, a few Su-57 fighters could be bought for considerable technology transfers.

China's defence industrial base is working to modernise its military to build a world-class force that can fight and win wars, an ambition repeatedly stressed by the Chinese leadership.

China's Emerging Aviation Superiority

China's defence industrial base is working to modernise its military to build a world-class force that can fight and win wars, an ambition repeatedly stressed by the Chinese leadership. "The Soviets were never able to match, much less overcome, America's technological superiority. The same may not be true for China," former Deputy US Defence Secretary Robert Work and his colleague Greg Grant wrote in a recent report.³⁴ China's economic power makes it highly unlikely that the US will be able to spend its way to victory in its strategic competition with China, the authors contend. The US has not faced a competitor with a Gross Domestic Product (GDP) greater than 40 per cent of its own in more than a century. China's GDP is currently around 63 per cent that of the US, and the country is projected to eventually have the world's largest economy. "China also has the political will and fiscal strength to sustain a steady increase in defense spending during the next decade," the Department of Defence explained in its 2019 report on China's military might, noting that these increases "will help support PLA modernization, develop an integrated military-civilian defense industry, and explore new technologies with defense applications." The Pentagon has identified the key elements of China's military modernisation as investments in domestic defence, the development of the defence industrial complex, a growing science and technology research and development base, civil-military integration, and acquisition of foreign technology. "The result of this multifaceted approach to technology acquisition is a PLA on the verge of fielding some of the most modern weapon systems in the world.," Lt. Gen. Robert Ashley, the director of the Defence Intelligence Agency (DIA), wrote in a letter prefacing a 2019 DIA report on China's military modernisation.³⁵ "In some areas," he added, "it already leads the world."

34. "Russia Reveals Export Version of Su-57 Stealth Fighter Jet, to Target Middle East", Defense World.Net, March 28, 2019, https://www.defenseworld.net/news/24540/Russia_Reveals_Export_Version_of_Su_57_Stealth_Fighter_jet_to_Target_Middle_East#.XbEjTFUzbIU

35. "DIA Chinese Military Power Report", USNI News, January 15, 2019, <https://news.usni.org/2019/01/15/dia-chinese-military-power-report>

OPTIONS FOR INDIA

As China has set a target of becoming a leading superpower by the year 2049, it is in competition with the US, the current superpower, which it wants to replace. The size of its economy is growing at a fast rate. It is already ahead of America's GDP in Purchasing Power Parity (PPP) terms and well on track to overtake it even in nominal terms. In a recent parade, it displayed its military might. It is trying to persuade nations to accept its new position by enticing them with financial help, using its massive economic clout, to accept its extra-territorial claims willingly, or if necessary, with its threatening posture, and with nations which do not succumb to the pressures, then by being overtly friendly with them. India falls in the last category. After the Doklam standoff, India has stuck to its position. This approach helped both India and China to keep peaceful borders despite the lingering boundary issue. Indian Prime Minister Modi and Chinese President Xi Jinping concentrated mostly on trade and terrorism issues at the Mahabalipuram Summit in October 2019.

Make in India defence production has finally started showing initial results. India is way behind, but all national energies need to remain focussed on the aim for India to take its place at the global high table. Aviation technologies are much tougher to master. India needs to take foreign help to master them. It also needs to invest much more on research and development. Also, defence production needs to be released from bureaucratic control as has been successfully done for India's space and nuclear programmes.

CHINA'S ACTIVE DEFENCE STRATEGY: A MARITIME PERSPECTIVE

JOSHY M. PAUL

INTRODUCTION

China's security strategy has been, by and large, defence-oriented and 'active defence' is the guiding principle of this strategy. Defending the territory is the foremost objective of China's defence policy. China's Defence White Paper 2015 has devoted one full chapter (Chapter III) to explain the strategic guidelines of active defence, which is supposed to highlight the defensive nature of China's security strategy.¹ The White Paper explains,

From the long-term practice of revolutionary wars, the people's armed forces have developed a complete set of strategic concepts of active defense, which boils down to: adherence to the unity of strategic defense and operational and tactical offense; adherence to the principles of defense, self-defense and post-emptive strike; and adherence to the stance that "we will not attack unless we are attacked, but we will surely counterattack if attacked."²

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1. Ministry of National Defence, "Chapter III: Strategic Guideline of Active Defence", *China's Military Strategy 2015*, People's Republic of China, Beijing, May 2015, http://eng.mod.gov.cn/Database/WhitePapers/2015-05/26/content_4586711.htm
2. Ibid.

Modern China's security strategy has largely been influenced by the Marxist-Leninist ideology and the thoughts of Mao tse-Tung as well as Deng Xiaoping. The elites of the Chinese Communist Party have modified the security strategy according to the changing nature of the security environment, its surroundings as well as global politics.

In fact, modern China's security strategy contends with a security threat from a superior enemy, so preventing an invasion by a superior power has been the cornerstone of its active defence strategy. Along with its defensive approach, of late, China has embarked on an expansionist strategy in the maritime domain, with great power ambition. In this regard, this article explains the importance of active defence in China's security strategy and its significance in the maritime domain.

States formulate their security strategies based on threat perceptions, both imminent and long-term, and how

to deal with such threats. In this counter-strategy, states rely on their past experiences and the nature of the threats. China has a rich history and has fought numerous wars—both internally and externally—in its evolution as a modern state. One can see the influence of the writings of ancient major strategic thinkers like Sun Tzu and others in China's modern behaviour—the so-called “strategic culture”.³ However, modern China's security strategy has largely been influenced by the Marxist-Leninist ideology and the thoughts of Mao tse-Tung as well as Deng Xiaoping. The elites of the Chinese Communist Party have modified the security strategy according to the changing nature of the security environment, its surroundings as well as global politics. For China, historically, had always confronted a superior power and, in most cases ended up losing its territory. This historical humiliation of defeat was somewhat reversed by the Communist Party when it decisively defeated the Nationalist government—the Kuomintang—and established Communist rule in China in 1949. In this pursuit, the Communist Party employed “active defence” as a major war-winning strategy to defeat the Nationalists who

3. Alistair Ian Johnston, *Cultural Realism: Strategic Culture and Grand Strategy in Chinese History*, (Princeton: Princeton University Press, 1995).

were superior and more powerful, in both quantitative and qualitative terms. Since then, active defence became an important security strategy of China and has been incorporated in various official policy documents concerning China's defence in the modern times.⁴

ACTIVE DEFENCE IN A HISTORICAL PERSPECTIVE

Mao tse-Tung conceptualised the active defence strategy during the long period of the civil war in China between the Communists and the Nationalist government under Chiang kai-Shek. It was conceived as a fundamental and winning strategy against a superior force. Mao had applied the active defence strategy in the "encirclement campaigns" against the Nationalists during the 1930s.⁵ Though initially it was not fully successful, he persevered with the strategy, with modifications, based on the situation and the strength of the enemy. The underlying principle of active defence was breaking the enemy's "encirclement and suppression" campaign and taking an offensive position against the enemy in order to defeat him decisively.⁶ Mao used it also against the Japanese invasion and continued it till the end of World War II. It explains the manner in which a superior enemy can be defeated. Since it has been experienced in the battlefield against a superior enemy in the past, it has become the cardinal military strategy for war-fighting by the People's Liberation Army (PLA).⁷

Active defence is linked with China's ability to break the "encirclement" put out by the enemy; and a counter-offensive is launched that finally annihilates the enemy.

4. Since the 1980s, the People's Republic of China's various official strategic guidelines on active defence have been used with the approval of the Central Military Commission and the 1980 guideline is also titled as 'active defence'. For details, see, "The 1980 Strategy: 'Active Defence,'" in M. Taylor Fravel, *China's Military Strategy Since 1949: Active Defense* (Princeton: Princeton University Press, 2019), Chapter 5. Also see Chapter III, "Strategic Guidelines of Active Defence" of China's 2015 Defence White Paper, http://eng.mod.gov.cn/Press/2015-05/26/content_4586805.htm

5. Ibid.

6. Mao tse-Tung, *Six Essays on Military Affairs* (Peking: Foreign Languages Press, 1972), p. 52.

7. Alexander Chieh-cheng Huang, "The Chinese Navy's Offshore Active Defense Strategy", *Naval War College Review*, vol. 47, no. 3, 1994.

According to Mao, active defence is different from a purely defensive mechanism. Active defence is offensive defence against a superior enemy in a long-term battle.⁸ It is employed after an enemy has launched its offensive against China. Active defence is linked with China's ability to break the "encirclement" put out by the enemy; and a counter-offensive is launched that finally annihilates the enemy. Strategically, in a war against an invasion, China would place itself in the "inner line" defence, lure the enemy deep inland, wear down his strength by attrition, and, finally, change the strategic balance. Tactically, in campaigns or operations, the PLA would concentrate its force, seize local superiority, engage the enemy force in specific areas, take the "external line" offence, and, finally, destroy the enemy piecemeal.⁹

Active defence is different from preemptive strikes. In the former, the offensive action begins after the enemy launches the first strike, while, in the latter case, the enemy is attacked before he launches an attack. Preemptive strike is an advance attack to stop a country from taking the initiative. For China, preemptive strike or strategic offensive is a strategy of the imperial powers to counter a rival one, while active defence is a strategy of the weaker one against an invasion by a stronger force in order to protect its territory, and, finally, to defeat the stronger force.

Mao argued that active defence comprises the real defence: defence for the purpose of counter-attacking and taking the initiative.¹⁰ It is offensive defence because under it, China directly engages the enemy and, eventually, defeats him. The experience that the Chinese Army gained during the civil war was that its strength lay in the interior where it could mobilise the people's participation on the battlefield. At this level, it could use various tactics of active defence including guerrilla warfare, breaking the communication chain of the enemy and massive retaliation to defeat the enemy decisively. As a military strategy, active defence embraces two concepts: first, strategic defence and tactical offensive; and, second, strategic

8. Mao tse-Tung, n. 6.

9. Huang, n. 7.

10. Mao tse-Tung, n. 4.

protraction and a tactical, quick decision.¹¹ Strategic defence is to counter the enemy's strategic offensive through China's strategic defensive action. This means that in a protracted war, China initially allows the enemy to embark on strategic consolidation which will be utilised by China for the preparation of a counter-offensive. This is the first state of war; the Chinese, as a relatively weak force, would conduct a strategic retreat and give up territory in order to lure the enemy inland where the PLA enjoys geographical advantage, and combat and logistical support. After the enemy's strategic consolidation China would seize the initiative and launch a counter-offensive to ensure the enemy's strategic defeat. Mao applied this strategy against the Japanese during World War II as he perceived that the war with Japan would be a protracted one that would move through three stages: strategic defence—when Japan was on the attack; strategic stalemate—when Japan would seek to consolidate its gains; and, a counter-attack that would lead to a strategic offensive to defeat the Japanese.¹² Therefore, active defence is a strategy to be used in a war against an invasion. It is also active in essence, which means that the PLA will take the initiative and engage the enemy force in decisive battles. Indeed, the execution of the active defence strategy relies heavily on the Chinese advantage of a large landmass and a huge population.

Communist China's security strategy during the 1950s and 1960s was to "defend the motherland" from the imperial powers. The Korean War and US' stationing of its military forces in East Asia led to the adoption of this strategy. In the initial period, China perceived threats from all sides—both imperial powers and reactionary forces colluding with the imperial powers in its neighbourhood. The Korean War necessitated deploying forces at the forward level and China had to get involved in low-level military conflicts with its neighbours. (The forward defence strategy of deploying forces at the border continued for some time to prevent a US invasion of China because of the US troops stationed in South Korea. But later, Mao realised the strategic as well as economic cost of this forward defence strategy because

11. Huang, n. 7.

12. Fravel, n. 4, p. 52.

the army's first priority was to ensure the survival of the Communist Party and, economically, China could not afford to deploy forces at the border for a longer period to challenge a superior enemy.) After the India-China War of 1962, Mao realised that China's security environment had got stabilised so he discarded the forward defence strategy.¹³ Instead, Mao envisioned luring the enemy in deep, allowing an adversary to occupy territory, and then defeating it through a protracted war, leveraging China's large territory and population.¹⁴ The "luring the enemy in deep" strategy became the central theme of China's security strategy during Mao's time because China could take advantage of its large territory and population and it was difficult for an invading force to maintain its military for long inside China. A long and protracted war would help China get stronger, raising powerful armed forces, while constantly harassing the enemy. In this strategy, China could lose its territory to the enemy forces but Mao believed that initial losses could be converted into an advantage for China and territory could be retrieved once the enemy was defeated. Minor tactical victories, thus, could result in major damage to a superior opponent. Driving deep into hostile territory could enfeeble the opponent until it was superior no longer. The 'luring deep theory' explains that the Chinese Army would lift itself gradually to strategic parity, then ascendancy, and, ultimately, win through a conventional counter-offensive. For Mao, the actual fight had to take place in the interior part where China could effectively tackle the enemy through large scale people's mobilisation and guerrilla warfare that could tactically be employed to break the enemy's additional support and channel of communication. In Mao's total war concept, a large landmass and huge population were considered a strategic advantage. This strategy continued until Mao's death, including as a strategy against the Soviet Union.

When Deng Xiaoping consolidated his position within the Communist Party by defeating his rivals, he sought to change Mao's principles of the

13. *Ibid.*, p. 127.

14. *Ibid.*, p. 113.

“total war”¹⁵ concept and reestablished the “active defence” strategy as a winning strategy in which forward defence became an important tactic. The strategic guidelines adopted in 1980 by the Central Military Commission emphasised active defence as the major defence strategy of China against a Soviet invasion. The 1980 guidelines represented a clear rejection of the existing strategy of “luring the enemy in deep and strategic retreat” and introduced a strategy similar to the one adopted by China in 1956, which upheld that forward defence would be based on positional warfare.¹⁶ The 1980s’ strategy called for the PLA to develop the ability to conduct combined arms operations to coordinate tank, artillery, and infantry units, deployed in a layered defensive network of fixed positions. A significant development of the 1980s guidelines was the adoption of the forward defence strategy, deploying arms and other offensive systems at various layers aimed at preventing the invading enemy from approaching the ‘core’ area.

After the 1969 border dispute between China and the Soviet Union, a major Soviet invasion emerged as a security threat for China. Accordingly, protecting China’s northern border was important in China’s security strategy. The 1980s’ strategy described how China would respond once the Soviet Union had invaded.

The core of the strategy was a forward defence of China’s northern border, especially potential invasion routes through Zhangjiakou or Jiayuguan, to prevent any strategic breakthrough and buy time for a nationwide mobilisation. Afterwards, the strategy called for combining the defence of strategic interior lines with offensive campaigns and operations on exterior lines to create a stalemate. Finally, if the effective strength of the invading force was sufficiently weakened, the PLA would shift to a strategic counterattack.¹⁷

15. Mao’s total war concept is a combination of the people’s participation in the war and various stages of military strategy which include a strategic retreat by China, consolidation at the interior, guerrilla warfare and a counter-attack by a large scale mobilisation of people.

16. Fravel, n. 4, p. 141.

17. *Ibid.*, p. 142.

By the end of the 1980s, the Soviet threat dissipated as a result of normalisation of the relationship between the two. Accordingly, China shifted its attention from the north where the security environment had stabilised and the Soviet threat had vanished, to the southern border – especially to the South China Sea.

Under the new concept, forward defence, rather than retreat, was viewed as the key to victory in such a conflict. In fact, in China's defence strategy, counter-attack, instead of preempting a Soviet attack, gained importance because China lacked any credible means to launch strikes beyond its borders. The principle of "gaining control by striking afterwards" or counter-attacking holds significant importance in the Chinese strategic concept, even in its rivalry with the United States in the Indo-Pacific.

Besides, Deng had also launched reforms within the PLA in the 1980s especially by downsizing the PLA and making it a more agile and flexible force.¹⁸ The lessons from the 1973 Arab-Israeli conflict, where new technologies were used—especially to gain air superiority or deny the enemy air superiority—as well as new inventions in defence technology in the United States which included the Strategic Defence Initiative (SDI) or the "Star Wars" programme, and China's poor performance in the 1979 Vietnam fiasco, led to the need for a new look in China's war preparedness.¹⁹ Accordingly, in July 1985, the Central Military Commission, together with the State Council and Central Committee, issued a new plan, titled *Plan for Reforms, Streamlining, and Reorganisation of the Military System*. The goal of the reform was to develop a force with streamlined administration, more flexible command, and greater combat power by reducing the number of personnel, eliminating the level of bureaucracy, downgrading units, and closing some installations.²⁰ When the downsizing was completed in 1987, over a million

18. Toshi Yoshihara and James R. Holmes, *Red Star over the Pacific: China's Rise and the Challenge to US Maritime Strategy* (Annapolis: Naval Institute Press, 2010).

19. Fravel, n. 4, p. 163.

20. *Ibid.*, p. 175.

soldiers—roughly 25 per cent of the force—had been cut.²¹ Moreover, China has given significant importance to qualitative change in its armed forces across the spectrum to meet the new and emerging challenges. By the end of the 1980s, the Soviet threat dissipated as a result of normalisation of the relationship between the two, and a new concept of warfare emerged which was that China's security environment had become stable but new conflicts would occur at the local level with a limited period, especially over disputed territory, in the southern part of China. Accordingly, China shifted its attention from the north where the security environment had stabilised and

the Soviet threat had vanished, to the southern border—especially to the South China Sea. For instance, in March 1988, Chinese and Vietnam forces clashed violently in the Spratly Islands when China moved to occupy six reefs also claimed by Vietnam.²² Similarly, the booming coastal region had now become the engine of Chinese economic growth, so protecting these regions also became one of the important aspects of China's defence strategy. Allowing the economically important coastal region to be taken over by the enemy during the initial stages of a future war (under Mao's "luring deep inside" strategy) could hamper China's ability to launch a counter-attack. As a result, China reintroduced the "forward defence" strategy, which then became the first line of defence in its security strategy in the 1980s. A war inside its territory would lead to destabilisation of the central government,

A war inside its territory would lead to destabilisation of the central government, hence, the Chinese decision-makers realised the importance of creating a forward defence line and the need to defend it. China realised that if any conflict were to take place, it must be outside the forward defence line and China has progressively been expanding this forward defence line along with its naval modernisation.

21. Ibid.

22. "Spratly Islands Dispute Defines China-Vietnam Relations 25 Years after Naval Clash", *The South China Morning Post*, March 17, 2013, <https://www.scmp.com/news/asia/article/1192472/spratly-islands-dispute-defines-china-vietnam-relations-25-years-after>

hence, the Chinese decision-makers realised the importance of creating a forward defence line and the need to defend it. China realised that if any conflict were to take place, it must be outside the forward defence line and China has progressively been expanding this forward defence line along with its naval modernisation. The first and second island chains are the forward defence lines as far as the Chinese defence strategy is concerned.

Also commensurate with the change in China's worldview is its assessment about its own position, mission and goal in that particular environment. The paramount leader Deng Xiaoping expressed the direction of China's worldview that a full scale war was not foreseeable in the future and that the world had changed from bipolarity to multipolarity, and co-governance was going to be the international norm.²³ Deng had also viewed that any future conflict would be short and more localised, hence, it was imperative for China to promote national defence and self-preservation more vigorously than before. Importantly, it was believed that new security challenges were going to emerge in the maritime domain, especially over the territorial disputes, which required coordinated operations from all the Services. This was different from the earlier strategy in which the army was the major stakeholder. Thus, the new situation has forced China to focus on modernisation of its armed forces, especially the navy, to prepare to meet sudden challenges emanating in its surroundings in which protecting its interests had become an important task for its defence forces.

Similarly, with the stable northern border and a conducive security environment at the regional level, China saw an opportunity to improve its strategic situation in the south where territorial disputes continued. To fulfill its strategic interest, China embarked on a military expedition to settle its southern border disputes—which included the land border dispute with India and Vietnam—as well as disputes over the Spratly Islands and small reefs in the South China Sea area. Between 1984 and 1988, a series of intense battles occurred over various hilltops on the disputed Chinese-Vietnam border, and in March 1988, Chinese and Vietnamese forces clashed violently

23. Kai He, *Institutional Balancing in the Asia-Pacific: Economic Interdependence and China's Rise* (London: Routledge, 2009).

in the Spratly Islands which led to the Chinese occupation of six reefs claimed by Vietnam.²⁴ Similarly, during 1986 and 1987, a tense standoff over an observation post on the Chinese-Indian border occurred at Sumdorong Chu, where the Indian Army inflicted heavy casualties on the Chinese forces, which led to the sacking of its Tibet Military District commander and the Military Region chief in Chengdu.²⁵ M. Taylor Fravel argues that these incidents forced the Chinese military leadership to realise that defending Chinese interests in different territorial disputes on the Tibetan plateau, in the South China Sea and, more importantly, in the Taiwan Strait, required different capabilities and concepts of operation.²⁶ Precisely for this reason, by the latter part of the 1980s, the strategic concept of securing the Chinese mainland from superior invading forces was replaced by protecting disputed territories in the southern border as well as in the maritime domain of the East China and South China Seas. In this case also, China believed that a superior force may intervene to prevent fulfillment of the Chinese dream. As a matter of fact, the central theme of “active defence” remained the same because if the conflict escalated, then the superior American military would intervene in the crisis. As a result, the active defence strategy now focussed on deterring a US invasion in a crisis over the disputed territories rather than a full-scale US invasion on the Chinese mainland. From the 1990s onwards, the maritime domain became the new strategic theatre for China and its new strategic guidelines underlined the scope of “active defence” in the maritime domain to prevent the US’ advance to the Chinese shores.

In January 1993, China released another strategic document known as the *National Military Strategy Guidelines for the New Era* to provide an overall framework of principles and guidance to plan and manage the development of the People’s Liberation Army (PLA). The new guidelines emphasized

24. For details of the China-Vietnam clashes, see M Taylor Fravel, *Strong Borders, Secure Nation: Cooperation and Conflict in China’s Territorial Disputes* (Princeton, NJ: Princeton University Press, 2008).

25. Manoj Joshi, “Operation Falcon: When General Sundarji took the Chinese by Surprise”, ORF Commentaries, July 3, 2017, <https://www.orfonline.org/research/operation-falcon-when-general-sundarji-took-the-chinese-by-surprise/>

26. Fravel, n. 4.

The new guidelines reflect the influence of war strategies of various international crises such as the 1982 Falklands War, the US air strikes against Libya in 1986 and, most importantly, the 1991 Gulf War which was short-lived and had successfully applied high technology in war-fighting.

“active defence” as the core strategy of the PLA and served as “the highest level of strategic guidance for all PLA military operations during war and preparation for war during peacetime”.²⁷ Given the nature of historical changes in conflicts, the guidelines introduced a new concept: “winning local wars under modern, especially high technology, conditions” which highlighted the need to wage wars with limited aims that would be characterised by new ways of fighting.²⁸ It was a major shift from the earlier strategy of how to counter an invasion of Chinese territory and the situation of a protracted

war. This situation has been aptly described in the official document *Science of Military Strategy* published by the Chinese National Defence University in 2001 that explains how China views local war under the new historical conditions:

Generally, the possibility of a large-scale ground invasion by an adversary is minimum. However, the danger of being the target of high-technological warfare, such as air-naval, air-space, and space-cyber wars, is intensifying. The threat from the east is more severe than that from the west, the threat from the sea is more severe than that from the ground; the threat from space and cyber network is gradually becoming true. The probability of conducting military operations to protect rights and limited oversea war operations is ever increasing. The most severe war threat is a large-scale strategic sudden attack launched by a strong adversary, which aims at destroying our war potential to force us to surrender. The most probable

27. “People’s Liberation Navy – Doctrine”, *Global Security*, <https://www.globalsecurity.org/military/world/china/plan-doctrine.htm>

28. Fravel, n. 4, p. 182.

war threat is a limited military conflict from the sea. The war we need to prepare for, particularly given the background of nuclear deterrence, is a large-scale, and highly intensive local war from the sea.²⁹

The new guidelines reflect the influence of war strategies of various international crises such as the 1982 Falklands War, the US air strikes against Libya in 1986 and, most importantly, the 1991 Gulf War which was short-lived and had successfully applied high technology in war-fighting. The guidelines also changed China's war preparedness that had been dominated by

the ground forces until then, but the new strategy elevated other forces to play a more active role to defend the nation, and changed the modes of warfare used since the civil war era, i.e. from guerrilla and mobile warfare to joint operations among the Services. Although the new strategy did not initially identify the "primary strategic direction", in 1993, while introducing the new strategic guidelines, then Chinese President Jiang Zemin explained that "the focal point of military struggle is to prevent a major incident of 'Taiwan's independence' from occurring".³⁰ As a result, deterring Taiwan's independence as well as preparing "to deal with sudden incidents" over "outstanding" territorial disputes southeast of Taiwan became the main strategic direction of China's active defence strategy.

Adm Liu Huaqing became the PLAN commander from 1982-87. Liu also generated a gradual future blue-water ambition for the PLAN and brought in a concept called "offshore operations" under the "active defence" strategy, and spearheaded an ambitious naval modernisation programme.

ACTIVE DEFENCE IN THE MARITIME PERSPECTIVE

When the People's Liberation Army Navy (PLAN) was created in 1949, it had been considered as a coastal defence force. In the continental security

29. Peng Guangqian and Yao Youzhi, *The Science of Military Strategy* (Beijing: Military Science Press, 2013 (English translation)), p.100.

30. *Ibid.*, p. 184.

concept, especially during Mao's era, the PLAN played a secondary role to the PLA. Later, it became a *de facto* independent Service in 1977, when its submarines, for the first time, sailed into the Pacific and the South China Sea.³¹ During the 1980s, its budgetary allocation shot up and its role increased when Adm Liu Huaqing became the PLAN commander from 1982-87. Liu also generated a gradual future blue-water ambition for the PLAN and brought in a concept called "offshore operations" under the "active defence" strategy, and spearheaded an ambitious naval modernisation programme.³² He also coined the "first island chain" and "second island chain" concept initially to defend the coastal territory as well as to protect China's sovereignty over the "outstanding" maritime territorial disputes, and to convert the Chinese Navy into a truly global naval force by 2050.³³

During the period of Mao's continental security strategy, the navy's role was defined as being to counter amphibious-landing operations as well as how to survive the first wave of enemy strikes.³⁴ At the operational level, the navy had two phases: the first phase of its operations was to "hide," i.e. help "to preserve (Chinese) strength through concealing and dispersing ships, and transferring planes to the second-line bases". In the second phase, strikes would be carried out when the enemy landing force switched ships, removed obstacles and organised into columns to drive to the shore. These were the enemy's moments of vulnerability mainly because the formation would become more dense, the manoeuvre more restricted, and the communications and coordination more confused. Also "sinking one enemy ship at these moments is equivalent to wiping out one enemy company or battalion later."³⁵ When the Soviet Union emerged as the main enemy of

31. Kamlesh Kumar Agnihotri, "Strategic Direction of the PLA Navy: Capability and Intent Assessment", *Maritime Affairs*, vol. 6, no. 1, 2010, pp. 71-97.

32. Nan Li, "The Evolution of China's Naval Strategy and Capabilities: From 'Near Coast' and 'Near Seas' to 'Far Seas'", *Asian Security*, vol. 5, no. 2, 2009, pp. 144-169.

33. "The Father of the Modern Chinese Navy—Liu Huaqing", Centre for International Maritime Security (CIMC), October 8, 2014, [HTTP://CIMSEC.ORG/FATHER-MODERN-CHINESE-NAVY-LIU-HUAQING/13291](http://CIMSEC.ORG/FATHER-MODERN-CHINESE-NAVY-LIU-HUAQING/13291)

34. Nan Li, n. 32.

35. *Ibid.*

China from the late 1960s, the role of the PLAN was prescribed at three levels: (1) preserving combat capability and preventing early engagement with the Soviet Pacific Fleet in decisive sea battles, in order to endure a protracted war; (2) dividing the PLA Navy into small groups, utilising fast attack craft and emphasising manoeuvrability of “fast attack, fast retreat” in order to destroy the Soviet naval force piecemeal; and (3) reliance on inshore and harbour mine-laying, land-based artillery, missiles, and naval air force in order to interdict the Soviet sea lines of communication and prevent a Soviet amphibious offensive.³⁶ In other words, the navy’s role was purely to support the army in the protracted war strategy. However, by the mid-1980s, a consensus was arrived at among the top echelons of the Communist Party as well as the Central Military Commission that there was a necessity to build an ocean going naval force that would play a major (leading) role for the navy in the era of local war under high technology conditions. Subsequently, the PLAN’s role and strategy were redefined as “active defence strategy under new historical (hi-technology) conditions”.³⁷

Offshore Active Defence

The role and strategy of the PLAN were redefined under the framework of “active defence strategy under new historical conditions”, which was further renamed as “offshore active defence” because of the area it needed to safeguard. The offshore active defence concept was elaborated by Adm Liu who asserted that “the Chinese Navy should exert *effective control* of the seas within the first island chain.”³⁸ Liu further stated that “offshore should not be interpreted as ‘coastal’ as we used to know it. Offshore is a concept relative to the ‘high seas’. It means the vast sea waters within the second island chain”³⁹ (see Fig 1). Although there is no clear-cut geographical

36. Huang, n. 7, p. 11.

37. Ibid.

38. Adm Liu’s remark is quoted in Ali Honggreen, *An Inside Look into the Chinese Communist Navy: Advancing Toward the Blue-Water Challenge* (Hong Kong: October 1988), cited in Huang, n. 7, p. 18.

39. Ibid.

mapping of the offshore active defence area, a consensus among the political and military leaders indicated that the “four large sea areas” (i.e. the Bohai, Yellow, East China, and South China Seas), plus the continental shelf out to the “first island chain” comprised the PLA Navy’s “offshore” area.⁴⁰ In general, the offshore active defence strategy aims to reunify Taiwan with the mainland, restore lost and disputed maritime territories, protect China’s maritime resources, secure the major Sea Lines of Communication (SLOCs) in times of war, deter and defend against foreign aggression from the sea, and conduct strategic nuclear deterrence.⁴¹

Fig 1: First and Second Island Chains



Source: James Stavridis, “China Seeks New Islands to Conquer”, *The Japan Times*, February 22, 2019, <https://www.japantimes.co.jp/opinion/2019/02/22/commentary/world-commentary/china-seeks-new-islands-conquer/#.XgmxcbhGTRw>

40. Ibid.

41. Nan Li, n. 30.

Offshore active defence was considered a defensive strategy against a superior enemy who attempted to invade China. China launched a defence modernisation drive in the 1990s to make the offshore active defence a winning military strategy. Although the 1988 or 1993 strategic guidelines did not clearly indicate the main adversary, the modernisation effort was mainly to counter the US forces' advancement towards the Chinese shores in any contingency. Under this strategy, the objective of the PLAN was to prevent the enemy forces capturing or getting close to the prosperous coastal cities, which later included defending Taiwan as well as other disputed maritime territories also. Accordingly, the PLAN has formulated two important strategic concepts: extended strategic depth and offensive operations.⁴² Extended strategic depth means that to protect its core area (also known as the resolute defence area) from the enemy, the actual war operation must take place far away from it. As the core area extended from the coastal belt to the Taiwan Strait, the strategic depth was shifted from the first island chain to the second island chain. Similarly, once war broke out, China would launch offensive operations against the enemy to protect its core area. This would include attacking ships and logistical support deployed in the forward lines, targeting forward bases of the enemy in the Western Pacific and neutralising the command and control systems, including the cyber-based capabilities, of the enemy. In this regard, the active defence strategy emphasises resolute defence of key areas such as coastal cities, which was the defence frontline during the 1980s and shifted to the strategic rear in the 1990s, the Taiwan Strait and the disputed territories in the East China and South China Seas, and acquiring offensive capabilities to intercept and destroy enemy systems at sea, or deterring the enemy forces from getting close to the first island chain. This change in strategy converted the PLAN into a more offensive force than before.

In the naval modernisation drive, the PLAN focussed on technological advancement to face future challenges, which included advanced equipment and modern warships. Without these, the admirals realised that it would be

42. Huang, n. 7, p. 20.

An “assassin’s mace” system could generate a psychological advantage for China which would help prevent a formidable foe from intervening in a crisis against China. In fact, according to Chinese analysts, the Anti-Access/Area Denial (A2/AD) capability is actually the “assassin’s mace” system.

impossible for the navy to compete in naval rivalry in the Western Pacific or carry out missions such as supporting Chinese claims in the Diaoyutai (Senkaku) and Nansha (Spratly) archipelagos.⁴³ Accordingly, the navy became a major beneficiary of China’s rising defence budget, which continued at a double digit growth during the 1990s and 2000s.⁴⁴ China started focussing more on research and development in the modernisation programme, including construction of aircraft carriers. To make the offshore active defence strategy effective,

especially the resolute defence, the navy has been given an important role in the Chinese national defence.

Another major change that occurred under the new historical condition was the change in the operational strategy of active defence. Under the earlier “luring the enemy in deep” strategy, active defence was considered to be a strategy of the weak against a superior power, hence, “gaining control by striking afterwards” was the fundamental principle of active defence. However, in the “new condition”, this strategy was likely to be vulnerable; so the new situation demanded “rapid reaction, flexibility, and effectively subduing the enemy”.⁴⁵ To address these challenges, the top military leaders gathered in mid-1992 and came out with a strategy that China must create “fists” and “assassin’s maces”.⁴⁶ The “fists” would be units with strong mobile operational capabilities of naval, air, and conventional missile forces, so that, “as soon as an incident

43. Ibid., p. 21.

44. Richard A. Bitzinger, “Recent Developments in Naval and Maritime Modernization in the Asia-Pacific: Implications for Regional Security”, in Phillip C. Saunders, Christopher D. Yung, Michael Swaine, and Andrew Nien-Dzu Yang, eds., *The Chinese Navy: Expanding Capabilities, Evolving Roles* (Washington, D.C.: National Defence University Press, 2011), pp. 23-40.

45. Fravel, n. 4, p. 201.

46. Ibid.

occurs, these forces can be sent rapidly to the theatre, control the situation, and resolve problems".⁴⁷ The "assassin's maces" referred to the development of advanced weapons that could be useful means for actually "subduing the enemy". Under this shift in operational strategy, China looked into developing systems to fulfill these two strategic concepts. Since then, the modernisation has focussed on acquisition of naval systems like submarines, large surface ships and aircraft carriers, and to gain air superiority, advanced aircraft, land-based as well as air-to-land cruise missiles that

China's military modernisation programme, launched in the 1990s, had two objectives: firstly to project its military prowess across the spectrum which included the air, naval, space and cyber domains; and, secondly to make active defence in the maritime domain a winning strategy.

are focussed on the adjacent waters. The assassin's maces to "subdue the enemy" hold significant importance in the Chinese strategy. From a historical perspective, particularly based on Sun Tzu's war strategy of "winning a war without a fight", the "assassin's mace" had significant influence in Chinese strategic thinking. An "assassin's mace" system could generate a psychological advantage for China which would help prevent a formidable foe from intervening in a crisis against China. In fact, according to Chinese analysts, the Anti-Access/Area Denial (A2/AD) capability is actually the "assassin's mace" system.⁴⁸

Initially, the prosperous coastal belt was the main focus of the resolute defence of offshore active defence because of its importance in economic reforms and national development. However, the developments in the

47. Ibid.

48. A. Krepinevich, *The Quadrennial Defense Review: Rethinking the US Military Posture* (Washington DC: Centre for Strategic and Budgetary Assessments, 2005), pp. 8- 91, <https://csbaonline.org/research/publications/the-quadrennial-defense-review-rethinking-the-us-military-posture>

Taiwan Strait, especially the 1996 Taiwan Strait crisis,⁴⁹ revealed not only the gaping defence technological gap between the US and China but the physical military threat that the US could pose to China. Since then, preventing Taiwan's independence has become a part of the national security objective, and deterring US from reaching the Taiwan Strait a strategic priority for China. As a result, the resolute defence perimeter has been extended beyond the first island chain; so naturally, the strategic depth area has also been pushed further outwards to what is the second island chain and includes Guam.

Active Defence in Operation in the Maritime Domain

China's military modernisation programme, launched in the 1990s, had two objectives: firstly to project its military prowess across the spectrum which included the air, naval, space and cyber domains; and, secondly to make active defence in the maritime domain a winning strategy. The modernisation of the armed forces, especially of the navy, was primarily targeted to acquire capabilities that could reinforce its sea denial capability against a strong naval power.⁵⁰ The inventory that the PLAN acquired included: conventional and nuclear power attack submarines; surface combatants such as guided-missile destroyers equipped with long-range Anti-Ship Cruise Missiles (ASCMs) and Surface-to-Air Missiles (SAMs), such as the indigenously produced Luzhou and Luyang I/II DDGs; and maritime strike aircraft.⁵¹ China has particularly focussed on developing different varieties—in both speed and manoeuvrability—of advanced ASCMs so that they can easily destroy the approaching enemy systems. A

49. On the eve of the 1966 general election in Taiwan, China intimidated Taiwan with a major military exercise near the Taiwan Strait to stop the then Taiwan President Lee Teng-hui, who was set to be reelected, from declaring independence. In response to the Chinese action, the US sent the aircraft carrier *Independence* and another one, the *Nimitz*, was on its way, which proved China's inability to exercise its will in the "near sea" area, and US naval presence within the perimeter of the first island chain as a major security challenge for China.

50. Yves-Heng Lim, "The Driving Forces Behind China's Naval Modernization", *Comparative Strategy*, vol. 30, no. 2, 2011, pp. 105-120.

51. For details, see, Oriana Skylar Mastro, "Chinese Ship-Based Air Defence System", in *China's Strategy for the Near Sea* (Annapolis, MD: Naval Institute Press, 2013).

number of these maritime strike aircraft, in particular the FB-7, FB-7 A, B-6G and Su-30MKK, can be armed with ASCMs to target surface combatants.⁵² China's conventional and nuclear powered attack submarines—the Kilo, Song, Yuan and Shang classes—are also capable of firing ASCMs.⁵³ The J-20 stealth fighter will increase China's ability to strike regional air bases, logistical facilities, and other ground-based infrastructure. The objective of the Chinese military modernisation drive is to make active defence a winning strategy by fielding capabilities designed to deter, deny and disrupt the deployment of US forces into the Chinese theatre.

In a conflict over Taiwan, a potential problem that China expects is to push the theatre farther from the Chinese waters, and for that, it has adopted both defensive and offensive approaches in the active defence strategy. The *Science of Military Strategy* explains that “after launching the war, we should try our best to fight against the enemy as far as possible, to lead the war about enemy's operational base, even to his source of war, and to actively strike all the effective strength forming the enemy's war system”.⁵⁴ China is sensitive about the US bases in Japan and Guam from where the US could launch its operations against China, and the US has always kept one aircraft carrier berthed at the Yokosuka naval base in Japan and long range bombers in Guam. The active defence strategy seeks to deny the US military the ability to manoeuvre physically or if the US was to engage the Chinese military directly, then it should be prohibitively costly for the US.⁵⁵ At the same time, if a physical engagement was ever to happen, then it should not be near the first island chain. Chinese integrated air defence, anti-ship cruise and ballistic missiles, maritime bombers, missiles and torpedo carrying submarines, and fast patrol boats are all designed to serve this purpose. The objective is to create a psychological advantage over the enemy about the cost of an

52. Oriana Skylar Mastro, “China's Anti-Access-Area Denial (A2/AD) Capabilities: Is American Rebalancing Enough?” on William H. Natter III, ed., *American Strategy and Purpose: Reflections on Foreign Policy and National Security in an Era of Change* (Jason Brooks), pp. 118-140.

53. Annual Report to Congress: Military Power of the People's Republic of China (Washington DC: Department of Defence, 2011), p. 19.

54. Guangqian and Youzhi, n. 29, p. 461.

55. Mastro, n. 52.

operation within the first island chain near the mainland. Since the US is far superior to China in terms of technology and physical naval strength in the Western Pacific, complete sea denial is not possible for China, so it aims to disrupt the US' manoeuvrability in the Western Pacific which includes preventing the US from operating from certain bases in the theatre, forcing US forces to operate at greater distance from the theatre of operations than preferred, or delaying US deployment from outside the theatre.⁵⁶

Active defence operates a variety of military characteristics that have been arranged in a multi-layered configuration for disrupting US forces; access to, and freedom of, manoeuvre within the significant portions of maritime Southeast Asia and the Western Pacific. At a larger level, active defence capabilities include advanced and extended-range air defence, air-to-air and precision strike capabilities, Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR), and force projection enablers such as aerial refuelling, airlift and logistic capabilities. China has made considerable achievements in all these aspects, most importantly in the space and cyber domains, including anti-satellite weapon technology. These could be employed to increase the time and distance required for the US forces to arrive in the theatre, and can even cripple the US' ability to launch offensive operations.

Active defence has both defensive and offensive characteristics and the configuration of capabilities that China has employed in the maritime domain is within this objective. However, it is difficult to distinguish which system counts for defence and which for offence, as some systems may be applied for both purposes. But it can be argued that those systems which have been deployed to intimidate or to attack Taiwan if it declares independence, as well as the systems to prevent the US from crossing the first island chain, can be considered as defensive operations. The operations employed to disrupt US naval deployment in the Western Pacific, including preventing its assets stationed in its bases in Yokosuka, Japan or Guam, or even reinforcement from other sources, to be effectively

56. Ibid.

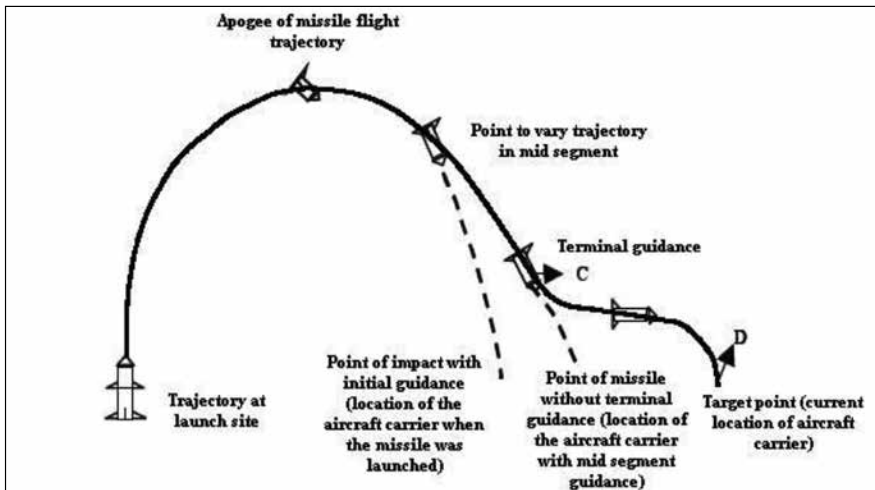
used against China, can be considered as offensive operations. These include a preemptive attack on US bases in Japan and Guam as well as attacks on US carrier groups far away from Chinese shores. China could even disable the US' space-based assets with its Anti-Satellite (ASAT) weapons. In recent times, China has invested hugely to develop strike capabilities in support of active defence which include High Powered Microwave (HPM) and Electro-Magnetic Pulse (EMP) weapons to blind US C4ISR assets such as satellites, and also to disable surface ships, and the use of Precision-Guided Munitions (PGMs) by rendering the Global Positioning System (GPS) constellations inoperable.⁵⁷ The active defence strategy has also been strengthened by advanced submarines—both conventional and nuclear—integrated air defence systems and development of the DF 21D and DF 26D land-based anti-ship missiles. The DF 26D is also known as the “Guam killer” because the US base in Guam comes within its range and US carriers can now be targetted around the second island chain also.⁵⁸ To prevent US intervention in a crisis over Taiwan, China is likely to launch a preemptive strike against US bases in the Western Pacific. This signifies the offensive nature of the active defence strategy.

China has also developed a sophisticated BMD system largely to protect the coast and the Taiwan Strait. The MRBM DF-21 D can target US carrier groups around the first island chain and the DF 26D can target the second island chain.

57. Sam Gondsmith, “China’s Anti-Access and Area-Denial Operational Concept and the Dilemmas for Japan”, 2012, <https://core.ac.uk/download/pdf/156621555.pdf>. For more details, see, Ronald O’Rourke, *China Naval Modernisation: Implications for US Navy Capabilities* (Washington DC: Congressional Research Service, 2012).

58. “Meet the DF-26 Missile: China’s Prized Anti-Carrier Weapon”, *The National Interest*, October 3, 2019, <https://nationalinterest.org/blog/buzz/meet-df-26-missile-chinas-prized-anti-carrier-weapon-85261>

Fig 2: Flight Trajectory of DF 21/26 D



Source: Annual Report to Congress: Military Power of the People's Republic of China (Washington DC: Department of Defence, 2011), p. 28, https://dod.defense.gov/Portals/1/Documents/pubs/2011_CMPR_Final.pdf

China has deployed a multi-layered configuration of systems in the East China and South China Seas to ensure active defence as a winning strategy. According to a Pentagon report, China has made evolutionary improvements in its existing capabilities, which include nuclear submarines, both attack (SSNs), and ballistic missile (SSBN) for attacking US infrastructure in the western Pacific.⁵⁹ China has already acquired second strike nuclear capability, with land-based as well as submarine-launched ballistic missiles reaching US cities to counter a US nuclear assault. China has purchased the Su-27 and Su-30 fighter aircraft from Russia and has indigenously developed the 5th Generation (Gen) fighter jet J-20 in order to ensure air superiority over the Western Pacific. Other multi-layered systems which have been arranged in the Western Pacific are: for operation out to 3,300 km from the Chinese mainland, the PLA will use the CSS-2 Intermediate Range Ballistic Missiles (IRBMs) and Land Attack Cruise Missiles (LACMs), launched from Chinese

59. Annual Report to Congress: Military Power of the People's Republic of China (Washington DC: Department of Defence, 2008), p. 21.

H-6 bombers to attack US forward operating bases and support infrastructure in the Western Pacific.⁶⁰ For operations out to 2,000 km, the PLA will use the road-mobile CSS-5 Anti-Ship Ballistic Missiles (ASBMs) and CSS-5 Medium Range Ballistic Missiles (MRBMs) in addition to the DH-10 LACMs and ASCMs launched by the FB-7 and H-6 aircraft. For operations out to 600 km, the PLA will use the CSS-6 and CSS-7 Short Range Ballistic Missiles (SRBMs), Chinese HG-9 Surface-to-Air Missiles (SAMs) and Russian PMU-2 SAMs for air and Ballistic Missile Defence (BMD).⁶¹ Besides, China possesses the most active ballistic missile programme in the world and has devoted considerable effort to fielding SRBMs with precision guidance.⁶² As preventing Taiwan's independence is the most important strategic priority, China has deployed more than 1,000 CSS-6 and CSS-7 SRBMs to garrisons opposite Taiwan and is increasing the size of this force at a rate of more than 100 missiles per year.⁶³ China has also developed a sophisticated BMD system largely to protect the coast and the Taiwan Strait. The MRBM DF-21 D can target US carrier groups around the first island chain and the DF 26D can target the second island chain.

Active defence is the guiding principle of China's overall security strategy. Mao had successfully used it during the civil war prior to the formation of Communist China, and it has been incorporated into the security strategy of China in the 21st century.

As Liu Huaqing propounded the three island chain concept and set the target period for achieving capabilities to secure the first island chain by 2010, the second island chain by 2020, and the third island chain by 2040, China is expanding its strategic depth towards the third island chain which includes the South Pacific and Indian Ocean Region (IOR). As stated above, active defence has both a core inner periphery known as the resolute defence

60. n. 53.

61. O'Rourke, n. 57, p. 4.

62. Thomas G Mahnken, "China's Anti-Access Strategy in Historical and Theoretical Perspective", *The Journal of Strategic Studies*, vol. 34, no. 3, pp. 299-323.

63. Ibid.

area and an outer strategic depth perimeter. China has gradually expanded its strategic depth, along with the capabilities, from the coastal waters in the 1980s to the Taiwan Strait during the 1990s. With the acquisition of the carrier killer missile, the DF 26D, this has further expanded from the middle of the first and second island chains to the outer periphery of the second island chain. Now, China has acquired aircraft carriers, and is planning to build six nuclear powered carriers by 2035, which are considered as the mainstay of expanding its powers and strategic influence from its backyard to far off regions. With the six nuclear powered aircraft carriers and the nuclear submarines, China can expand its strategic depth concept into the Indian Ocean without much difficulty. Thus, the active defence strategy ensures the protection of China's core interest in the East China and South China Seas, and allows it to expand its influence towards the South Pacific as well as the IOR.

CONCLUSION

Active defence is the guiding principle of China's overall security strategy. Mao had successfully used it during the civil war prior to the formation of Communist China, and it has been incorporated into the security strategy of China in the 21st century. It aims to deter Taiwan's independence, protect China's interest in the territorial disputes in the maritime domain and expand China's naval presence in the far sea regions such as the Southern Pacific and Indian Ocean. The primary objective of China's active defence strategy is to prevent US involvement in a crisis over Taiwan, and if the US were to be involved in such a crisis either by directly engaging with China or by supporting Taiwan, then it should be prohibitively costly for the US. So China hopes to get a psychological advantage against the enemy by conveying that the cost to the US will be greater to it than the benefit, in order to deter it from a military engagement with China. Through the military modernisation programme launched in the 1990s, China has acquired the capabilities to achieve this objective which include C4ISR, a large number of missile arrays, different types of surface ships, submarines

and dominance in cyber warfare. Various Western-based reports on China's military capabilities prove that China has indeed achieved air superiority over the Taiwan Strait with its large number of short range missiles and stealth fighter jets which are likely to pose insurmountable challenges to Taiwanese and American efforts to command the air over the strait and the island.⁶⁴ With its acquisition of modern weapon systems to protect its core area, China has widened the scope of its strategic depth further afar from the shoreline. China wants to avoid any naval engagement with the US closer to its shore. It can also target US bases in the Western Pacific with preemptive strike capability to prevent the US from using its assets during a crisis. In a way, under the active defence strategy framework, China could pose a serious challenge to the US Navy in the Western Pacific.

China is emerging as a major maritime power, capable of enhancing its influence and prestige across the ocean. Of late, the Western powers have started to acknowledge China's naval prowess with the capability to overcome US challenges in the Western Pacific. China has had a focussed military modernisation to acquire capabilities for defensive as well as offensive purposes under the active defence strategy. The expansion of the resolute defence area that was initially the coastal belt, then including the area up to the first island chain, is also based on the capability that China has acquired over a period of time. When it developed the IRBM DF-26D, China expanded its strategic depth from the first island chain to the second island chain. Now the first island chain is part of the resolute defence strategy. Similarly, when China completes its six nuclear powered aircraft carriers, the Indian Ocean Region is likely to come within the strategic depth strategy. This will truly enhance China's ambition of being a maritime power with a blue-water navy capability.

64. David A. Shlapak et al., *A Question of Balance: Political Context and Military Aspects of the China-Taiwan Dispute* (Santa Monica, Calif.: RAND, 2009). Also see Ashley Townshend and Brendan Thomas-Noone, "Averting Crisis: US Defence Spending, Deterrence and the Indo-Pacific", United States Studies Centre, University of Sydney, New South Wales, July 2019, <https://www.usssc.edu.au/analysis/averting-crisis-american-strategy-military-spending-and-collective-defence-in-the-indo-pacific>

CHINA AND RUSSIA: NEW DREAMS OR A MARRIAGE OF CONVENIENCE?

BHAVNA SINGH

Narratives of the rise and fall of great powers and their aspirations have repeatedly shaped world politics and the world order over the years. China and Russia have been especially engaged with each other over the last ten years. In their struggle for spheres of influence, both have invoked grand narratives to explain power transitions. It is reasoned that given the oft-extrapolated US decline, the fate of the international liberal order will be decided by the rising influence of China and other Asian countries.¹ Though the legitimacy question on China's rise has been raised by security experts, it has to be borne in mind that China is gaining in wealth, power and prestige in an international system that is more norm and rule bound than any before in history, and, hence, its trajectory towards the rise as a sole superpower—if at all—will be very demanding.

The sheer speed with which China has risen over the last twenty years has astonished the international community as the possibility of a Communist-led polity managing a successful economy could hardly have been imagined a few decades ago. By mass producing cheap goods, China has not only kept global inflation in check but also become so integrated that economists are

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1. Assuming that China grows faster than other economies and the balance of power moves in Beijing's direction, the status-quo will be moved to a more Pareto-optimal condition, leaving the rising state better off and no one else worse off. See Randall L. Schweller, "Managing the Rise of Great Powers: History and Theory", in Alastair Iain Johnston and Robert S. Ross, eds., *Engaging China: The Management of an Emerging Power* (New York: Routledge, 1999), pp. 1-31.

Xi Jinping also enumerated the objective of the “basic realization of socialist modernization” by 2035, which includes China becoming one of the most “innovation-oriented” countries, significantly enhancing the country’s soft power and improving its economic prosperity.

now worried about what will happen to the world economy if China’s growth begins to slow down.² The aspirations for economic revival and rebuilding great power status have led to a slow penetration into the neighbouring economies for both China and Russia by creating pockets of influence and, at the same time, hedging the great powers in their traditional backyards. China’s leaders are trying hard to encash on a “period of strategic opportunity” to expand their country’s “comprehensive national power”.

Over the coming three decades, they hope to realise a powerful and prosperous China on the international stage that is equipped with a world class military to achieve the objectives of maintaining the rule of the Chinese Communist Party (CCP), and domestic stability as well as defending national sovereignty and territorial integrity to achieve the much cherished ‘Chinese Dream.’ This concept was first articulated in 2012 and encapsulates a long-standing national aspiration of restoring China’s status as a powerful and prosperous nation.³ President Xi and other leaders link the China dream to two high-profile centenary milestones: achieving a “moderately prosperous society” by the 100th anniversary of the CCP in 2021 and building a “prosperous, strong, democratic, civilised, harmonious and beautiful modernised socialist strong country” by the 100th anniversary of the establishment of the People’s Republic of China (PRC) in 2049. At the 19th Party Congress in October 2017, Xi Jinping also enumerated the objective of the “basic realization of socialist modernization” by 2035, which includes China becoming one of the most “innovation-oriented” countries, significantly enhancing the country’s soft power and improving its economic prosperity.

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2. Michael Cox, “Axis Of Opposition China Russia and the West”, in Asle Toje, ed., *Will China’s Rise be Peaceful?* (Oxford University Press, 2018), pp. 321-349.
 3. Annual Report to Congress, Military and Security Developments Involving the People’s Republic of China 2019, Office of the Secretary of Defence. Accessed on May 2019.

One of the main aspects of the Chinese dream has been its “march towards the West”, manifest in terms of the Western Development Campaign on the Belt and Road Initiative (BRI). The Sino-Russian dynamics have to be understood within this framework, as, despite being its greatest supporter, Russia is also the single largest competitor in the Eurasian region for China. The two countries have maintained a cordial relationship under different cooperative mechanisms like the Shanghai Cooperation Organisation (SCO), Brazil, Russia, India, China and South Africa (BRICS)-Plus, United Nations Security Council (UNSC) and other multilateral organisations as well as through establishing institutions of economic assistance—like the Asian Infrastructure Investment Bank (AIIB)—for development in Asia. China became Russia’s largest trading partner, accounting for 15 per cent of Russian international trade in 2017. The two countries maintain their determination to choose development paths suited to their own national conditions and set clear goals for natural rejuvenation.⁴ Despite sharing a long history with Russia—with which it also shares one of its longest borders—the China-Russia relationship has not received the attention that this complex bilateral relationship deserves. This article aims to address this lacuna by focussing on this relationship.

China is today at a juncture where it is witnessing the world’s biggest urban boom, the creation of the largest middle class and a prolonged economic growth process without equal.

IDEOLOGICAL CONVERGENCE ON MARXIST PRECEPTS: PAST AS PROLOGUE

China is today at a juncture where it is witnessing the world’s biggest urban boom, the creation of the largest middle class and a prolonged economic growth process without equal. The essence of the Party’s hegemonic guidance and Xi’s dream can be found in the “living soul” of Mao Zedong’s thought and revolutionary praxis, which can be condensed into three basic aspects: seeking truth from facts, the mass line, and independence and self-

4. “Chinese Dream in Accord with Russian Dream”, *People’s Daily* Online, May 22, 2014.

determination. While under Mao, the height of ambition for a common man was symbolised in owning things like a bicycle, a radio, a watch and a sewing machine, post-2010, the people's aspirations have hovered around education, housing and social security.⁵ This combination of prosperity and security constitutes the China dream though inequality remains a significant detriment. After Deng's reform and opening up, the major alteration in the Chinese dream came about during Hu Jintao's time when he inculcated a more empirical and less ideological administrative ethos under his 'scientific path to development' bringing the people's dream to achieve merit-based equality closer to reality.

The changing attitudes to employers and professional ambitions are accompanied by new lifestyles based on a status-flaunting ethos reflected in the growth of travel and tourism in the current era. For those unable to catch up, a kind of solace has come from the spirit of community that has kept the social fabric of China intact, especially evident in the *taiji* sessions and dancing exercises in squares and parks across all cities in China. Making these modest ambitions a reality is likely to help the Chinese cope with the changes that modernisation and globalisation are ushering in. No wonder then that the plutocrats promulgate the notions of transition and benign progress, and in line with traditional ancient thought, take to themselves a special moral cleansing role. The unending commitment to authoritarianism has not, however, made the Party secure and confident. The collapse of the Soviet Union and how Russia developed afterwards has been studied widely to argue against rapid, radical political reform in China.⁶ Comparisons still abound as the two governments exhibit hostility to dissent, deep suspicion of Western intervention and a strong aspiration to impose tighter controls over their own societies.

The Chinese government recently exhorted that the Chinese dream is in accord with the Russian dream. Not only did China establish the National Security Commission (NSC) in 2013 but also identified the spread of pro-democratic ideas as a national security threat for China. Yet, the two

5. Gerard Lemos, *The End of the Chinese Dream: Why Chinese People Fear the Future* (Great Britain: Yale University Press, 2012), pp. 82-103.

6. *Ibid.*, pp. 252-271.

neighbours are entangled in a diplomatic endgame to pull Central Asia within their own fold under alternative visions.

The Russians have taken lessons from history, especially the Ili Crisis, which they acted on once their finances improved during the 1980s. Tso Tsung Tang suggested that China might eventually restore order in its own house and when it does, it might present a serious military threat to Russia. The only answer that the Russians came up with was the rapid construction of a railway line through Siberia which could facilitate troop deployments in the long-term. In its defence, as Zhomini wrote, for Russia "it was absolutely necessary to have defensive naval forces in Vladivostok and to consolidate military presence along the entire Siberian frontier, especially the Siberian Railway."⁷ Presently, it can be noted with certainty that like Xi Jinping, President Putin is also a strong nationalist seeking rejuvenation of his humiliated country and has voiced his dream under the Eurasian Union construct, stretching across the Caucasus and Central Asia to the Russian Far East, which has been denoted as Putin's efforts to "re-Sovietize Eurasia".⁸ The two countries have maintained a close but sceptical view of their relationship, mostly blamed on the traces of the Sino-Soviet Treaty of Friendship, Alliance and Mutual Assistance signed in 1945. The treaty was a product of the Yalta Agreement and reminded China of its weakness due to the terms associated with the Chinese Changchun railway and Port Arthur (Lushun) and Port Dairen (Dalian). Even when the Soviet Union agreed to provide loans at lesser interest for the economic development of China, Mao continued to harp on the disrespect to China's sovereignty and Russia's unfair method of non-trade payments which were sorted out and refunded only in 1956. China outrightly voiced its objection to the big-power chauvinism that the Soviet Union demonstrated in its dealing with other socialist countries.⁹ Socialism, however, continues to be a reason for proximity in their relationship as

7. "Zhomini to Girs, 10/12/1990 (10/24/1880)", in Charles and Barabara Jelavich, *Russia in the Far East 1876-1880*, p. 122.

8. Tom Miller, *China's Asian Dream* (London: Zed Books, 2017), p. 85.

9. *Resistance to and Criticism of the Soviet Union, Diplomacy of Contemporary China* (New Horizon Press, 1990), p. 40.

China chose to ally with the Soviet Union under the “leaning to one side, the side of socialism”, and it is quite interesting to see how history has come full circle under the Belt and Road Initiative/One Belt One Road (BRI/OBOR) in which the two states are again promoting and bargaining in terms of opening up of trading ports and cities. However, considering Russia has indicated expansionist designs in earlier history and with China now exhibiting expansionist potential, the clash of the titans would be an interesting development to speculate on.

While China has called for a “new type of relationship among major countries” (*xinxing daguo guanxi*)—especially in the context of the United States—an assertive Xi Jinping wants to distinguish himself from global economic powers such as Japan, Germany and Russia by reshaping the global order and managing global challenges. Yan Xuetong advocates that China needs both bases and military allies to maintain political balance in East Asia, and in this regard, Russia can be the strategic balancer to establish a more formal military alliance since they have been historically close except for the 1960s’ split. The countries have a long history of voting together in the UNSC and the current leaderships share a comfortable relationship based on preference for a multipolar world order; it has gradually evolved from a “constructive partnership” in 1994 to a “strategic partnership of coordination” in 1996 and a comprehensive strategic partnership in 2012 (under Hu Jintao) and 2014 (under Xi Jinping). Russia considers China to be a close ally and refers to Xi Jinping as a “very good friend and reliable partner” as China stood by it when Russia invaded Ukraine in 2014, electing not to criticise Moscow or join in international sanctions for Russia’s violation of Ukraine’s sovereignty. In response, Russia has been noticeably silent on China’s behaviour in the latter’s maritime disputes with its neighbours.

Both countries have maintained close communication and effective coordination to promote political solutions to the Syria crisis and the Iran nuclear issue. Trade between the two has reached a value of \$89.21 billion, an increase of 1.1 percent compared with the previous year; in fact, China

remains Russia's biggest trading partner. Notwithstanding, distrust on China's growing regional influence still remains high and though their views are synergistic, their efforts remain uncoordinated and their understanding of a new world order quite vague.

Putin's dream, on the other hand, is more linked to the establishment of the Eurasian Economic Union (EEU) comprising Russia, Belarus and Kazakhstan which grew out of the existing Customs Union (since 2015) and was defined precisely in the new Historic Project on the 'Russian dream' in an address to the Federal Assembly on March 1, 2018. It was for the first time since the October Revolution in 1917 that the country presented a rational, coherent national development project dealing with internal economic, social, military and cultural evolution, together with a blueprint for its role in the 21st century.¹⁰ In fact, on January 27, 2018, Vladimir Putin became the longest serving leader of Russia since Joseph Stalin, and who has built his country back on the model of St. Petersburg as a "window to the West" (as conceived by Peter the Great).¹¹ The document highlighted five essential aspects of the Russian dream:

- The current political systems have been derived from the scientific and technological revolutions of the 20th century.
- The survival capacity and the strategic autonomy of the country depends on its potential of national economic production and thermonuclear destruction.
- The ideological vacuum created by the implosion of 20th century socialism is now being filled.
- The system of governance will continue to be dominated by five hegemony: China, Russia, the USA, India and the European Union (EU).
- Putin and Xi demonstrate exceptional capabilities, making them legitimate successors to Lenin and Mao.

10. Heinz Dieterich, "Russian Dream, Chinese Dream and American Dream: Vectors of 21st century Civilization", *Cyber Leninka*, no. 3 (413), 2018, pp. 120-123.

11. Susan B. Glasser, "Putin the Great, Russia's Imperial Impostor", *Foreign Affairs*, September/October 2019.

Russia has also increased its presence in the Southeast Asian region by inking several deals with the Philippines, including agreements on nuclear energy, agriculture and tourism, as well as commercial agreements worth close to \$1 billion, alongside a defence pact, making way for military exchanges and procuring Russian arms.

However, Russia's ambitions look quite downsized considering that it once hoped to assist as an economic intermediary between Western Europe and the Asia-Pacific, but now focusses on the much more modest goal of expanding the Eurasian Economic Union (EEU) comprising Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia. The conception of the EEU arises from Russia's intent to check China's March West and though the Chinese have considerable economic power, they don't want to annoy Russia. Even the Central Asian Republics find it more credible to depend on the Collective Security Treaty Organisation (CSTO) than to work with the SCO. Culturally also, the Central Asian Republics are closer to Russia as they are attuned to the Russian language.

Russia has also increased its presence in the Southeast Asian region by inking several deals with the Philippines, including agreements on nuclear energy, agriculture and tourism, as well as commercial agreements worth close to \$1 billion, alongside a defence pact, making way for military exchanges and procuring Russian arms. It can be said with a significant amount of conviction that Russia is second only to the US as a global arms exporter, a position which gives it an important presence in the defence market. Russia's growing comprehensive strategic partnerships with Thailand and Vietnam are clear indications of its response to geo-political pressures related to the US and China. It clearly intends to check the dominance of any one single power in the region and its defence spending reemphasises this tendency.

The two countries (Russia and China) clearly fear ideological contamination from the West and, hence, see cooperation as an effective remedy. Both

continue to operate as centrally controlled and planned economies which brings them together ideologically. However, a comprehension of their respective dreams of national rejuvenation has to be based on the appraisal of the comprehensive national strength of these two countries.

MILITARY COMPETENCIES AND POTENTIAL FOR COLLABORATION

China's leaders continue to emphasise developing a military that can fight and win. In 2018, China came out with a new *Outline of*

Training and Evaluation that emphasised realistic and joint training across all warfare domains and covered missions and tasks aimed at "strong military operations." The most notable element of China's strategic behaviour was the inculcation of the experiences of foreign militaries and absorption of the methods that those militaries use. According to the reports of several US observers, China and Russia are more aligned than at any point since the mid-1950s. In July 2017, the two countries' navies conducted joint exercises in the Baltic Sea for the first time. In September 2018, China participated in Russia's annual Vostok military exercise for the first time. Russia has also sold China advanced military equipment, including the S-400 air defence system and 24 Su-35 fighter aircraft.

Russia's navy commissioned its first new truly blue-water principal surface combatant in some two decades, including with a new, potentially more capable air-defence system. The recent creation of information troops and reinstatement of the main Directorate for Political-Military Affairs showed that Russia's command is increasingly focussed on confrontation in the information domain. Russia is improving its air force capabilities through the development of the Su-57 and Su-35. The surge in its naval capabilities also shows how Russia could potentially challenge the North Atlantic Treaty Organisation (NATO) and other navies in the region. It is also improving

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the quality of its military leadership as witnessed in the appointment of Col-Gen Sergei Surovikin, a career ground force officer, who gained significant experience through operations in Syria.

On March 1, 2018, in his annual address to the Federal Assembly, President Putin referred to the ongoing development of innovative strategic weapons. For instance, the Burevestnik, a nuclear-powered ultra-long-range cruise missile, is currently under test. A squadron of modernised MiG-31 fighters equipped with the Kinzhal hypersonic air-to-surface missile is undergoing operational testing in the Southern Military District in the Caspian Sea, while Peresvet mobile lasers have been observed at the Strategic Rocket Forces bases. Some of these are still under testing such as the Poseidon, a nuclear-powered uninhabited underwater vehicle, but some like the Sarmat (SS-X-29) Intercontinental Ballistic Missile (ICBM) have been commissioned to replace the RS-20 (SS-18 Satan) ICBM.¹² The fact that Russia does not refrain from using force, as demonstrated in the use of military power in the case of Crimea and its provocative behaviour in the Euro-Atlantic area, it challenges China's growing ambitions in Asia. Russia continues to enhance its infrastructure, and though its economy grew very modestly (between 1.5 to 1.7 per cent from 2013 to 2018), its defence spending grew rapidly under the State Armament Programme, peaking in 2015. As of 2018, its total military expenditure was 4 percent of the Gross Domestic Product (GDP).

Under a new State Armament Programme stretching over ten years to 2027, Putin has approved acquisition of strategic missiles like the RS-24 Yars ICBMs. Since it was realised that the Armata battle tank was too costly for mass acquisition, upgrading of the T-72, T-80 and T-90 tanks is likely to continue. Though Russia has laid no particular emphasis on a naval strategy, some of the already functional submarines and cruise missiles (Kalibr and Oniks) are likely to remain under construction. The defence industry is, however, marred by long delays and a series of costly launch failures. Even the building of new non-nuclear submarines is hampered by the inability

12. *The Military Balance*, "The Annual Assessment of Global Military Capabilities and Defence Economics", IISS, 2019, pp. 165-221.

to produce a viable air-independent propulsion unit. In consequence, some cost-saving measures have been introduced. The vast state corporation Rostec looks set to absorb the United Aircraft Corporation, achieving full control of the military-aerospace industry, hence, indicating a centralised tendency within the country.

Russia is also keen on developing its robotic industry, just as China is keen on using artificial intelligence, cyber and quantum technologies for enhancement of military capabilities. As members of the SCO, China and Russia have cooperated in military exercises, e.g. counter-terrorism drills in Kyrgyzstan in 2002, and in Kazakhstan and China in 2003. However, Russia has seen a decline in its influence over the last few years, especially after its annexation of Crimea, before which Ukraine used to source the majority of its defence equipment from Russia. The fact that Rostec is still under US sanctions has hindered Russia's defence exports.

China's power projection capabilities, on the other hand, have significantly improved under Xi Jinping as he is using the strategic opportunity of a favourable external environment to modernise the People's Liberation Army (PLA) and bolster the armed forces. In 2017 and 2018, China demonstrated a more assertive posture on Taiwan and in the East China Sea by flying the PLA Air Force (PLAAF) H-6 K bombers and Su-35 Flanker E combat aircraft. And despite Xi Jinping's promise to Obama in 2015, China has continued to build infrastructure and military facilities on the land reclaimed in the South China Sea, besides allocating US\$ 168 billion for its defence budget in 2018 (US\$ 175 billion, according to some sources). With the deployment of the HQ-9 air-defence systems, the YJ-62 Anti-Ship Cruise Missiles (ASCMs) (likely), as well as J-11B combat aircraft on the Woody Island, China has changed the balance of power in its maritime dominions. With the stationing of its reorganised light combined arms infantry unit in 2018 utilising the 4x4 vehicles from the Dongfeng Mengshi family as personnel carriers and truck and jeep-mounted howitzers, it has set a template for the rest of the PLA Army's (PLAA's) light combined arms unit.¹³

13. Ibid., pp. 235-236.

The two new redesignated air-assault brigades in the Eastern and Southern Theatre Commands, the 121st from the 75th Group Army and the 161st from the 83rd Group Army, are also now working up their capabilities and have begun exercising in their new role.¹⁴ The most advanced variants of the ZTZ-99, the ZTZ-99A continues to equip the 112th Mechanised Division and 62nd Combined Arms Brigade though the army is a relatively low priority for reequipment. The refurbishment is being done in terms of the army's combat-support equipment, including artillery, engineering and air-defence systems. The HQ-16 air-defence system is a case in point. The system which is considered roughly analogous to Russia's Buk, is now deployed with units in Tibet and Shanghai.

The PLA Rocket Force (PLARF) and the PLAAF are being extensively revamped to address the threats in the South China Sea and the Indian Ocean. In particular, the multiple new missile brigades formed during 2017 are now beginning to take shape, organised on similar terms as the existing corps-leader-grade bases (Bases 61-69) which are armed with the DF-21 D Medium-Range Ballistic Missiles (MRBMs) and an additional brigade of DF-26 Intermediate-Range Ballistic Missiles (IRBMs), (which have anti-ship capabilities) is also being set up. When considered in addition to the deployment of DF-21D, this would result in doubling of the PLARF's capacity since the reorganisation has begun. An MRBM with a hypersonic glide-vehicle payload designated as the DF-17 is also suspected to have been tested in late 2017 but the information regarding its intended mission and capacity is limited. However, the increasing emphasis on the use of the air force is unmistakable and could not have been imagined a decade ago. The appointment of two PLAAF officers, Gen Xu Qiliang as the vice-chairman of China's Central Military Commission (CMC) and Gen Yi Xiaoguang as the commander of the Central Theatre Command gives attestation to this.

Though the H-20 bomber and the Xian Y-20 aircraft are being domestically produced, the continued dependence of China on Russia for acquisition provides scope for cooperation. In addition to the Chengdu J-20 combat

14. *Ibid.*, p. 235.

aircraft being initiated into the PLAAF, it has also raised its first unit of the Sukhoi Su-35 Flanker E armed with the export version of the Russian R-77-1 (AA-12B Adder) active-radar-guided medium range air-to-air missile. China's naval capabilities have also increased at a fast pace with the *Liaoning* and *Shandong* aircraft carriers already in service, two new Type-055 cruisers being added as late as July 2018, and four more under construction. China is also renovating its marine corps.

The PLA Navy's (PLAN's) four Type-094 Jin-class ballistic missile submarines are shortly going to become operational. China's incremental progress looked so intimidating that the US disinvited the PLAN from the US-led Rim of the Pacific exercise. China, however, has been unrelenting in its efforts to upgrade its defence industry, focussing on innovation, civil-military integration and industrial rationalisation which supports its goal of having world-class military forces by 2049, and achieving the millennial goal of having a modern socialist country under the China dream.

The two countries, Russia and China, however, converged on their stated opposition to the deployment of the US Terminal High Altitude Air Defence (THAAD) missile defence system in South Korea, a decision made in mid-2016, which they believed would destabilise the existing balance in Asia. So, while both countries continue to strengthen domestic production and stress on self-reliance in military terms, they often come together against foreign intervention in Asia. Both have high aspirations for military modernisation and stress the importance of advanced dual-use technologies. Chinese leaders have specially emphasised civil-military integration and employing tactics short of armed conflicts.

Their cooperation in the defence field is reassuring to both when compared to the US which competes from a position of strength; Russia and China have largely been confined to cooperate as lesser partners and, hence, this cooperation gives them a constructive and result-oriented relationship. The Chinese Minister of National Defence Wei Fenghe visited Moscow in April 2018 "to let the Americans know about the close ties between the armed forces of China and Russia." China's expanding strategy to protect its interest

Even though its economy is cooling, China's growth rate remains over four times that of Moscow—a divergence that ensures that the imbalance between their power capabilities and the consequent gap between their abilities to fulfil global ambitions will grow apace as China may outgrow Russia more rapidly than earlier imagined.

overseas through active defence and “offshore waters defense” is propelling it to greater cooperation with its neighbours, especially Russia. China will seek to establish additional military bases in countries with which it has longstanding friendly relationships and similar strategic interests and, hence, it will be seen wooing the Russian plutocracy to grant it access to its ports and military facilities in the near future. Taking cognisance of the international security situation, the Chinese Defence White Paper (2019) mentions how Russia is strengthening its nuclear and non-nuclear capabilities for strategic containment and striving to safeguard its strategic security space and interests and, hence, there is a need for China to revolutionise its military affairs with Chinese characteristics and safeguard against non-traditional security threats as well.

OPPORTUNITIES AND CONSTRAINTS IN CONNECTIVITY

Russia's rapprochement with China forms a part of its 'pivot to Asia.' With “Made in China 2025,” China aspires to be no longer just an imitator of world-class technology, but a creator, which is seen in the outreach of firms such as Huawei. In the 19th Party Congress report, Xi Jinping highlighted that China's rise was accelerating a multipolar international order and the need for reform in global governance systems.¹⁵

In contrast, Russia does not have the economic wherewithal to pose a challenge, only the tactical savvy to be an opportunistic disruptor.¹⁶ Russia lacks significant capacity as its demographic dividend is unfavourable. Russia is cognisant of the economic gap between the two countries. According to

15. n. 3.

16. Ibid.

the World Bank, within a span of 25 years (in 2017), China's Gross Domestic Product (GDP) grew to nearly eight times that of Russia (\$12.2 trillion versus \$1.6 trillion). Russia's trade balance has been in the negative despite China being its largest trade partner. Even though its economy is cooling, China's growth rate remains over four times that of Moscow—a divergence that ensures that the imbalance between their power capabilities and the consequent gap between their abilities to fulfil global ambitions will grow apace as China may outgrow Russia more rapidly than earlier imagined. Nevertheless, they intend to increase the volume of bilateral trade to \$200 billion by the end of 2020. Since the Western market is not entirely neutral, the two countries have taken similar counter-measures.

Consequently, the two countries envisage to work together under the Silk Road Economic Belt (SREB) and the Eurasian Economic Union (EEU) and create Free Trade Agreements (FTAs) in the Asia-Pacific region. The stronger reason for an emerging alliance between China and Russia could be adduced to the American threat. Both are proud nations with long memories; the two countries share an affinity in moving away from the dollar and start trading in their own currencies. Moreover, the two countries desire to shape a multipolar world consistent with their authoritarian model and steer clear of America's promotion of democratic values. The two countries converged on the Belt and Road Initiative (BRI) by issuing a joint statement on May 8, 2015, outlining the main approaches to linking the SREB and EEU by accepting that instead of setting out two competing visions, they should endeavour to build a "common economic space" in Eurasia that included an FTA between the EEU and China, and the two projects should be viewed as

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complementary.¹⁷ Putin's statement at the BRI Forum that Russia's Northern Sea Route (NSR) in the Arctic could be linked with the BRI was one of the important signals towards this shift, though it may not be a feasible strategy.

Bilateral cooperation between the two has advanced steadily and the China-Russia oil and gas pipelines are already replacing the "Ten thousand Li Tea Route"¹⁸ of the 17th century as the new artery of the century" connecting the two countries. Russia will not only support, but is itself looking to China to help upgrade and finance its own infrastructure, i.e. the 770 km high speed rail line between Moscow and the southern city of Kazan. The two sides previously completed a rail bridge across the Amur river linking Russia's Autonomous Jewish oblast to China's Heilongjiang province, providing an estimated 5.2 million tons of annual freight turnover capacity, with further work elsewhere amounting to about 20 million tons. Talks are being held over the completion of a road across the Amur river linking Blagoveshchensk and Heihe which might be bagged by the Chechen construction magnate, Ruskan Baisarov.¹⁹ These projects will provide connectivity in addition to the Trans-Siberian Railway and Baikal-Amur Mainline (BAM) which provides for trade currently.

Under the contours of BRI, which essentially is bringing about a change in the nature of development models in Eurasia, competing strategies are resulting in another global shift, along with changes in monetary structures and supply chains. China and Russia have both agreed to currency swap arrangements in 2014 via the People's Bank of China (PBOC) and the Central Bank of Russia, towards the amount of Yuan 150 billion (\$25 billion) which they believe would provide greater stability to the global financial system.

17. Lu Na-Xi, Huang Meng-Fang and Lu Shan-Bing, "How the Belt and Road Initiative can Help Strengthen the Role of the SCO and Deepen China's Cooperation with Russia and the Countries of Central Asia", *India Quarterly*, Sage, 75 (1), 2019, pp. 56-68.

18. S.C.M. Paine, *Imperial Rivals, China, Russia and their Disputed Frontier* (New Delhi: M.E. Sharpe, Armonk, 1996), pp. 31-43. Traditionally, the Russian government used to rely on revenues from the overland trade between Europe and China as a significant source of income. The trade was conducted through two border towns of Kiakhta and on the border with Outer Mongolia south of Lake Baikal. While, for some time, Russian exports to Europe were beneficial, they were soon superseded by China's exports and the Russian goods have been less competitive ever since.

19. Nicholas Trickett, "Putin in Beijing: What Drives China-Russia Relations?" *The Diplomat*, May 1, 2019, <https://thediplomat.com/2019/05/putin-in-beijing-what-drives-china-russia-relations/> Accessed on July 9, 2019.

The two countries have been carrying out joint construction of a nuclear power station at Lianyungang, Jiangsu province, with an installed capacity of 2 million KW since 1999, and in 2014, they agreed on a 40-year gas supply agreement between Gazprom and the China National Petroleum Corporation (CNPC).²⁰

The changing realities are reflected in the post-Ukraine scenario whereby there is a dawning realisation that Russia needs China more than China needs Russia. Russia's primary exports are hydrocarbons and natural resources while China is the leading importer of crude oil. Hence, there is growing interdependence for markets and resources. Not only has Russia increased the subsidy to keep its far-flung regions afloat but has also expanded e-commerce links with Chinese Information Technology (IT) giants like Alibaba and Tencent. In return, many Russian brands have found their way to the Chinese market. China's indigenous version of Alexa, called the Tmall Genie, is poised to challenge Russia's Yandex as Russian e-shoppers have begun to depend on supply chains from Chinese manufacturers. Despite these intervening trade ties, the two main reasons for Russia to be apprehensive are largely China's growing presence in the Central Asian region and its increasing intent to populate Russia's Far East with Chinese labourers. This was the reason Russia took an ambivalent stand on economic cooperation within the SCO.

TRADE IN ENERGY AND MINERALS

China and Russia both want to ensure reliable and diverse energy resources to support their economic growth which currently drives their overseas investment. In 2018, China met 44 per cent of its natural gas demand with imports, which is projected to grow to 46 per cent by 2035. China doubled the capacity of its pipelines to Russia from 3,00,000 to 6,00,000 barrels per day. Primarily, China looks to the Persian Gulf, Africa, Russia and Central Asia to meet its growing oil and gas demand. The desire for collaboration on energy issues was expressed by Xi Jinping to Putin as recently as the

20. Bob Savic, "Behind China and Russia's 'Special Relationship,'" *The Diplomat*, December 7, 2016, <https://thediplomat.com/2016/12/behind-china-and-russias-special-relationship/> Accessed on July 9, 2019.

St. Petersburg International Economic Forum on June 6-7, 2019. The two countries had signed several major energy deals even earlier but this time the economic deals ranged from a variety of arrangements like the 5 G networks to hydropower. Russian oil constitutes a steadily growing share of China's energy portfolio, and in 2016, Russia became the country's biggest oil supplier, displacing Saudi Arabia, and it is contracted to sell China 1.3 trillion cubic feet of gas annually for three decades, beginning this year, through the Siberian pipeline.²¹ China has, in turn, invested in Russia's oil giant Rosneft, through its state-run banks which are responsible for financing the pipelines connecting the two countries. Russia also exports huge amounts of natural gas to China.

The two countries have reached an agreement on cooperation on the Primorye-1 and Primorye-2 international transport corridor, alongside the OBOR summit in 2017 as the route will significantly increase cargo transit from China to the Russian port city of Vladivostok.²² Primorye-1 will handle cargo via Vladivostok bound for the west coast of the United States and Europe, while Primorye-2 will handle regional traffic between China and Russia and through to Korea and Japan. Some shipments have already been done along the two routes and have been found to be highly beneficial to manufacturers from neighbouring provinces. For instance, a joint venture between Russia's Vostochnaya Stevedoring Company (part of the Global Ports group) and Heilongjiang Sea Land Channel International Logistics has already transported 250 Twenty-Foot Equivalent Units (TEUs) of sawn timber for markets in Italy. Another shipment has been done along the second corridor to South Korea.

Russia has also opened up a series of port facilities along the Arctic Ocean making the Northern Passage a viable route for transportation of goods across

21. James Dobbins, Howard J. Shatz, Ali Wyne, "A Warming Trend in China-Russia Relations", April 18, 2019, <https://www.rand.org/blog/2019/04/a-warming-trend-in-china-russia-relations.html>

22. "Russia, China Agree on Primorye-1 Corridor; Opens up Heilongjiang To Asia-Pacific Markets", May 15, 2017, Russia Briefing, <https://www.russia-briefing.com/news/russia-china-agree-primorye-1-corridor-opens-heilongjiang-asia-pacific-markets.html/> Accessed on August 17, 2019.

the northwest at Kandalaksha near the border with Finland, Severomorsk (a closed city and home to Russia's Northern Fleet), Murmansk, the port of Arkhangelsk, Vitino, Naryan-Mar, Belomorsk, Dikson, and Dudinka on the Yenesei River Gulf, Igarka, Tiksi, and Pevek, the northernmost town in both Russia and Asia. From Pevek, the Russian landmass heads south, through the Bering Straits, and wraps around northern China until it reaches Vladivostok. It will be fully operational by 2025. Of particular significance is the Arkhangelsk port that sends and receives lumber, pulp, coal, machinery, metals, industrial and consumer goods, and is the operating base of the Northern Company, performing the maritime transport of the White, Barents and Kara Seas, the Northern Passage and overseas lines.²³

China and Russia are also cooperating and competing along the Arctic Sea Route, in terms of trade as well as exploration. The Chinese currently have the *Xue Lóng* (*Snow Dragon*), the research vessel with icebreaker capabilities, operated by the Polar Research Institute of China, and another one, a diesel-electric icebreaker named *Xue Lóng II*, which entered service in September 2018. Russia, on the other hand, currently operates a fleet of civilian nuclear-powered vessels. Four icebreakers and one container cargo vessel have RTP Atomflot in Murmansk as home port and another three nuclear powered icebreakers are under construction.²⁴ China is also planning to introduce its first nuclear-powered icebreaker which will be 2 metres longer and a few thousand tons heavier than Russia's current Arktika-class icebreakers.

The two countries are also involved in several nuclear projects. The first two reactors of the Tianwan nuclear power plant in eastern China's Jiangsu province, a major joint project between the two countries, have been put into trial operation and the other two are under construction.²⁵ Both wish to

23. "The Northern Sea Passage Between Europe and Asia—Russia's Developing Arctic Ports", Russia Briefing, April 10, 2017, <https://www.russia-briefing.com/news/northern-sea-passage-europe-asia-russias-developing-arctic-ports.html/>. Accessed on August 27, 2019.

24. Thomas Nilsen, "Details of China's Nuclear-Powered Icebreaker Revealed", *The Independent Barents Observer*, March 21, 2019. Four older icebreakers have been taken out of operation, including the *Lenin* that today is moored in the central port of Murmansk and serves as a museum.

25. "China-Russia Energy Cooperation Promising", *China Daily*, August 28, 2014, http://www.chinadaily.com.cn/world/2014-08/28/content_18504609.htm, Accessed on August 27, 2019.

In his address to the Moscow State Institute of International Relations while launching the 'Tourism Year of China in Russia' in 2013, Xi Jinping described the relationship between China and Russia as "one of the most important (special) bilateral relationships in the world."

overcome limited direct investments in each other's country by increasing the scale of bilateral trade. As such, China has employed economic tools coercively during periods of political tensions with its neighbours. Though this coercion is not witnessed in the case of Russia, there was a precedent in the handling of the Senkaku Islands incident, where a collision of a PRC-flagged fishing boat with a Japanese Coast Guard vessel had led to the halt of exports to Japan in 2010 of rare earth elements used in high-tech industries. China may not employ such coercion in the case of Russia given its traditional affability.²⁶

Such developments, however, raise the questions of how deep can an alignment between Russia and China be, what are the factors that are bringing them together, and to what extent is their relationship forming in direct opposition to, and competition with, the United States and India? To begin to answer this question, it is important first to frame it in the appropriate strategic context and then observe the direction that their multilateral engagements are going. These are probed in the following section.

HOW FAR WILL INDIA BE A FACTOR IN RUSSIA–CHINA RELATIONS?

In his address to the Moscow State Institute of International Relations while launching the 'Tourism Year of China in Russia' in 2013, Xi Jinping described the relationship between China and Russia as "one of the most important (special) bilateral relationships in the world."²⁷ The old USSR

26. Addison Wiggin, "The Truth Behind China's Rare Earths Embargo", October 20, 2010, www.forbes.com/sites/greatspeculations/2010/10/20/the-truth-behind-the-chinese-rare-earths-embargo/#1a81646f7846

27. Xi Jinping, "Follow the Trend of the Times and Promote Global Peace and Development" in *The Governance of China* (Foreign Languages Press, 2014), pp. 297-305.

was for many years a close ally of the Chinese Communists and the two countries appear to be on excellent terms even today. Though there are many who doubt if the relationship is a secure one, and at times have called it a “non-committal and asymmetrical” relationship built on convenience,²⁸ there is considerable hope for cooperation between the two neighbours in the near future. In February 2018, a meeting of the Intergovernmental Commission for Cooperation of the Northeast and the Far East and Baikal Region of Russia introduced a new initiative, the “Years of China-Russia Local Cooperation and

Exchange 2018 and 2019.” As of August 2018, Xi Jinping and his Russian counterpart Vladimir Putin had met 26 times. In June 2018, Xi gave Putin China’s first—ever friendship medal, calling him “my best, most intimate friend.” Earlier in 2016, Putin and Xi had urged that both countries’ legislative bodies enhance exchanges and mutual learning so as to further elevate China-Russia ties. The media reports on Putin’s gift of Russian ice-cream to Xi Jinping which eventually popularised the dessert in China, and their stated interest in holding a ‘2017 China-Russia Media Exchange Year’ showcases use of soft-power diplomacy to enhance the ties between the two nations. The two countries have adopted similar measures of control over the internet and reinforced extensive systems of censorship.²⁹

However, despite this bonhomie, Russia’s behaviour as regards China has been rather unpredictable at multilateral forums. Judging from its

The India-Russia relations have remained a relatively stable factor in international relations since the heydays of the Cold War. India and Russia also have common interest in reducing their dependence on the United States and China respectively in matters of regional importance. However, Russia will not compromise on its traditional strong relationship with China.

28. Bobo Lo, *Axis of Convenience: Moscow, Beijing and the New Geopolitics* (Washington, DC: Brookings Press, 2008).

29. Wang Tian, Xing Xue, Zhang Guangzheng and Zhang Xiaodong, “China-Russia Ties Better Than Ever in History”, *People’s Daily*, June 30, 2017, en.people.cn/n3/2017/0630/c90000-9235329.html

behaviour at the East Asia Summit (EAS), SCO and UNSC, there seem to be several reasons for tension arising between the two. Russia failed to support China's demand on the Spratly and Paracel Islands and maintained that the dispute should be resolved through bilateral negotiations between the two claimants and also adopted a neutral position on China's disputes with Japan.³⁰ Russia seemingly resents losing out to China in the Arctic, Central Asia and North Korea. A "third order" generated outside the constraints of the American and Chinese strategic thinking can also not be ruled out which could be a result of the long-standing friendship between India and Russia. The India-Russia relations have remained a relatively stable factor in international relations since the heydays of the Cold War. India and Russia also have common interest in reducing their dependence on the United States and China respectively in matters of regional importance.³¹ However, Russia will not compromise on its traditional strong relationship with China and, hence, its engagement with India has to be seen on separate grounds rather than as a prime mover in the Russia-China relationship.

Russia's promotion of the concept of the "Greater Eurasian Partnership" is then a part of its effort to improve its strategic environment by constantly readjusting its strategy. This is also reflected in its endorsement of the "North-South transport corridor" with India which it sees as a counter to keep its dependence on China under check. Similarly, Russia prefers to interact with China and India under the Russia-India-China (RIC) framework which gives it more flexibility as compared to the BRICS-Plus, though China demonstrates its intransigence to it. In the latest meet, held in February 2019, they agreed to eradicate the breeding grounds of terrorism in the backdrop of the Pulwama attack in India. Conceding the realities, several scholars have blamed the Russian political system for hindering Russia's economic growth. China, on the other hand, has responded to the newly competitive international

30. Munro, "Patterns of China-Russia Cooperation in Multilateral Forums" in K. Brown, ed., *The EU-China Relationship: European Perspectives. A Manual for Policy Makers* (London: Imperial College Press, 2015). <http://eprints.gla.ac.uk/90747/>. Accessed on July 9, 2019.

31. Carl Jaison, "Is Asia Ready for an Indo-Russian Order?" September 6, 2019, <https://thediplomat.com/2019/09/is-asia-ready-for-an-indo-russian-order/>. Accessed on September 10, 2019.

situation by deepening its relationship with a strategic partner. However, the relationship is given to its own ups and downs. The Russians view the Chinese with a mixture of awe and fear and though trade between them has risen, neither of them is ready to sacrifice its more important ties with the capitalist economies. Geoff Dyer has, in fact, termed both of them to be power-obsessed states.³²

The two countries have been pushing for greater financial and monetary autonomy by distancing themselves from the dollar-dominated order of international trade and finance by creating their own alternative networks like the Cross-Border Interbank Payment System (CIPS) instead of using the Society for Worldwide Interbank Financial Telecommunication (SWIFT) system; the Chinese yuan has recently entered the International Monetary Fund's Special Drawing Rights currency basket which reflects China's intent to move away from a system based on US rules.³³ However, Russia suffers more deficits in terms of technology and innovation and has, therefore, taken the safer option of switching to gold standards by boosting its gold reserves, while China is catching up in renewable energy, biotechnology and artificial intelligence, which means it may consider digitalised currencies as an option.

The two countries are also regionally active, agreeing on several common platforms, for instance, they have reiterated a collective desire to carry forward the spirit of solidarity, cooperation and mutual assistance for cooperative security at the 4th Conference on Interaction and Confidence-Building Measures in Asia (CICA) held in Shanghai in 2014 and agreed on the Memorandum of Understanding (MoU) to supply the CNPC with 30bcm/y from western Siberia to Xinjiang province at the Asia-Pacific Economic Cooperation (APEC) Summit in Beijing in 2014. Similar agreements have been made at the G 20 Hangzhou Summit in 2016 where they held a dialogue for enhancing investments, investment protection, privatisation, and provision of state guarantees on finance for projects; and the APEC and BRICS-Plus

32. Geof Dyer, *The Contest of the Century: The New Era of Competition with China* (London: Allen Lane, 2014), p. 212.

33. "The Rise of a Not so-New World Order", *Stratfor*, November 15, 2017.

meetings in 2016 whereby they set up a credit rating agency and strongly condemned terrorism in all its forms and manifestations and stressed that there could be no justification whatsoever of its spread and existence.

CONCLUSION

The expansionist Chinese dream is successfully minimising Russia's role in the multilateral projects, and maximising its own potential. Hence, China effectively checks Russia's pivot to Asia.³⁴ Xi Jinping has proved to be tougher than his predecessors, more ambitious on behalf of his country and more assertive about protecting its interests.³⁵ Given that Putin is also a strong personality, the two giants endure a massive dilemma of competing and cooperating at the same time, giving the relationship a bitter-sweet familiarity. Geographic proximity and the waning Russian influence, however, indicate that the Chinese dream may continue to forge ahead, forcing the Russians to confine themselves to limited influence in Eurasia. Also, China's approach to diplomacy has been shaped by its geo-political history since the country's location provides it access to the developed economies overseas, and overland access to precious energy assets in Central Asia and the Middle East.³⁶ The CCP now aims to evolve a single, homogenous "Chinese national identity" based on Chinese exceptionalism, driven by their beliefs of moral persuasion and cultural superiority. How far they will be able to achieve this is a matter best left to the future. The larger goals are to tap the wealth in the East and technological advancement in the West, as stated by scholar Zhang Wenmu. Meanwhile, "the disruptive economic, military and cultural consequences of the information revolution and the causes of our distemper are easier to understand in their combined

34. Stephen Blank, "Russia's Pivot to Asia: The Multilateral Dimension, NBR", https://www.nbr.org/wp-content/uploads/pdfs/publications/workingpaper_blank_062817.pdf. Accessed on July 9, 2019.

35. Richard Mc Gregor, "Party Man, Xi Jinping's Quest to Dominate China", *Foreign Affairs*, September/October 2019, https://www.foreignaffairs.com/articles/china/2019-08-14/party-man?fa_package=1124684. Accessed on August 23, 2018.

36. Joshua Stowell, "How Chinese Exceptionalism Fuels an Expansionist Foreign Policy", *Global Security Review*, October 24, 2018.

jostling for world power status,” as stated by Walter Russel Mead.³⁷ A new Russia under siege from a hostile West and a China still confronted by the US that stands as an obstacle to its ambitions in the Asia-Pacific, have both decided that there is much to be gained from moving closer together and continuing with this durable marriage of convenience. They did, after all, force the US to remove its long-term military components out of the SCO members’ territories in July 2005 in a thinly veiled reference to the US bases in Kyrgyztan and Uzbekistan.³⁸ China’s expansionism is due more to necessity than ambition as reflected in the BRI which aims to ease the country’s economic and logistical dependence on its eastern coast while developing its less developed interior regions.

37. Walter Russell Mead, “Why Russia and China are Joining Forces”, Hudson Institute, July 29, 2019, *Wall Street Journal*, <https://www.hudson.org/research/15211-why-russia-and-china-are-joining-forces>. Accessed on July 31, 2019.

38. “2005 in Review: The Geopolitical Game in Central Asia”, Radio Free Europe Radio Liberty, December 29, 2005, www.rferl.org/a/1064270.html. Accessed on August 24, 2019.

STATUS OF GLOBAL NUCLEAR ENERGY: A SURVEY

ZOYA AKHTER FATHIMA

INTRODUCTION

Nuclear energy today is in a state of flux. While several countries in the West are phasing out nuclear energy, numerous countries in Asia are in the process of developing their civil nuclear programmes. As various factors are at play, such as growing energy demands in some parts of the world and a plateau in energy demands in other parts, increasing climate change awareness, public concerns on nuclear safety, etc., the debate on the future of nuclear energy becomes complex. In this context, this paper attempts to analyse the contemporary nuclear power scenario in the world. The paper is divided into five sections. The first section looks at the history of nuclear power from the 1940s to 2011. The second section analyses the effect the Fukushima accident had on the course of global nuclear power and the following section analyses the current global nuclear trend. The fourth section explores the growth of nuclear energy in Asia and attempts to understand if a new nuclear renaissance is imminent. The fifth section is the concluding segment.

BACKGROUND

Breakthroughs in science and technology impact geo-politics and international relations. The case of the advent of nuclear power amply proves

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Post the 1945 nuclear bombings, there was widespread fear and trepidation among people around the world of the possibility of repeated use of such weapons. Eisenhower's speech, on an issue which had been shrouded in secrecy, was helpful in pacifying the public and his call for a peaceful solution was needed to placate the people.

this. Although the study of nuclear energy had been developing from the time the Greek philosophers first tried to understand and define atoms, it developed over the years through the cumulative efforts of various scientists around the world. However, nuclear technology for military purposes was used for the first time only at the end of World War II. In 1945, the United States of America dropped nuclear weapons on the Japanese cities of Hiroshima and Nagasaki. The consequence of this was not only harrowing for those in the two cities, it also changed the nature

of international power dynamics. Thereupon, cognisant of the dangers of nuclear weapons, countries spearheaded by the United States tried to regulate the use and development of nuclear technology.

US President Dwight Eisenhower's speech titled "Atoms for Peace" at the United Nations General Assembly in 1953 turned out to be a watershed moment in this regard. The speech, which was part of a media and public relations campaign by the US government, sought to communicate to the American public the future of nuclear power. Eisenhower's speech was significant for multiple reasons. First, post the 1945 nuclear bombings, there was widespread fear and trepidation among people around the world of the possibility of repeated use of such weapons. Eisenhower's speech, on an issue which had been shrouded in secrecy, was helpful in pacifying the public and his call for a peaceful solution was needed to placate the people. Secondly, his speech was also meant to signal to countries to give up any pugnacious plans and, thus, is considered to be a part of the Cold War "containment" strategy. And, finally, the "Atoms for Peace" programme opened up nuclear research for peaceful purposes to other countries. In the

words of President Eisenhower, "This greatest of destructive forces can be developed into a great boon for the benefit of all mankind." In a way, this was promoted as an incentive for countries to not develop nuclear weapons.¹ The "Atoms for Peace", programme also led to the creation of the International Atomic Energy Agency (IAEA). Thus, in the 1950s, the attention was shifted towards peaceful use of nuclear energy, focussing on generating power.

The US government also revised the Atomic Energy Act which enabled it to disseminate nuclear technology to other countries if they pledged to never develop nuclear weapons. In this regard, the US government provided training and assistance in building research reactors to several friendly countries. They also declassified many reports on nuclear technology and signed cooperation agreements with over 20 countries. These included countries like India, Pakistan, Argentina, Brazil and Iran among others. This heralded a period of nuclear optimism. The 1973 oil crisis also added to the nuclear appeal since many countries that used to rely on oil to generate electricity started considering nuclear energy. The French, for instance, summarised their rationale to adopt nuclear power in the following words: "We have no coal, we have no oil, we have no gas, we have no choice."²

However, the Three Mile Island accident in the United States in 1979 created panic and uncertainty around the further development of nuclear power, although it did not result in any casualties. Anti-nuclear protests started gaining in strength not only in the US but also in other countries which were developing civil nuclear programmes. In addition, in the 1980s,

The Three Mile Island accident in the United States in 1979 created panic and uncertainty around the further development of nuclear power, although it did not result in any casualties.

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1. Jesse Hicks, "Atoms for Peace: The Mixed Legacy of Eisenhower's Nuclear Gambit", *Sciencehistory.org*, July 19, 2014, <https://www.sciencehistory.org/distillations/atoms-for-peace-the-mixed-legacy-of-eisenhowers-nuclear-gambit>. Accessed on May 15, 2019.
 2. George Dvorsky, "Is Nuclear Power Really on the Way Out?", *Gizmodo*, <https://io9.gizmodo.com/is-nuclear-power-really-on-the-way-out-5917615>. Accessed on May 15, 2019.

the prices of fossil fuel dropped. The 1986 Chernobyl disaster furthered the opposition against nuclear energy. Several countries even halted the construction of their reactors, while others contemplated phasing out of nuclear power altogether.

By the late 1990s and the beginning of the new millennium, this trend started to reverse as the economies of countries began to look up and the energy demand-supply gap increased. Many countries were in the process of achieving major economic development and faced a substantial energy deficit. Countries also became aware of the serious threat posed by climate change, and the search for cleaner sources of energy intensified. With the rising price of fossil fuels, recognition of the low carbon footprint of nuclear energy and high capacity factor of nuclear reactors, the nuclear appeal increased. Thus, by the beginning of the new millennium, more countries had started showing interest in going nuclear. This period, known as the “nuclear renaissance”, saw growing optimism about the future of nuclear power, as 15 new nuclear projects started in 2010.³ The IAEA corroborated this sentiment in its annual report of 2010 which stated that “60 member states have expressed interest in the introduction of a nuclear power programme”.⁴ In fact, the IAEA set up an integrated nuclear infrastructure group in response to the growing interest in nuclear power by various countries.⁵

THE FUKUSHIMA ACCIDENT AND ITS EFFECT ON NUCLEAR POWER

The Fukushima Daiichi accident that took place on March 11, 2011, altered the course of global nuclear development again. The accident took place after an earthquake and a tsunami struck Japan. Technically speaking, the Fukushima accident resulted in one casualty, where a worker died of cancer

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3. Geert De Clercq, “Nuclear Newbuild Projects at Decade Low: Report”, Reuters, September 12, 2017, <https://www.reuters.com/article/us-nuclear-outlook/nuclear-newbuild-projects-at-decade-low-report-idUSKCN1BN1RM>. Accessed on May 20, 2019.
 4. Annual Report 2010, International Atomic Energy Agency, <https://documents.pub/document/annual-report-2010-558445e3010d3.html>. Accessed on May 28, 2019.
 5. “Emerging Nuclear Energy Countries”, World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/others/emerging-nuclear-energy-countries.aspx>. Accessed on June 1, 2019.

because of radiation exposure, while the earthquake and tsunami led to the unfortunate deaths of over 18,000 people.⁶ However, the Fukushima nuclear accident severely impacted people's collective memory. Post this accident, there was a huge public outcry on nuclear safety, which pressurised governments to reconsider their national nuclear ambitions. Many countries that were on the verge of starting their nuclear programmes either stalled or cancelled them. According to the IAEA annual report of 2015, the number of countries that had showed interest in starting nuclear capabilities in 2010 had fallen by 50 per cent in 2015!⁷ Public acceptance of nuclear power was severely eroded. In 2011, after the Fukushima disaster, polls undertaken by Ipsos Mori, a British market research company and *Asahi Shimbun*, a Japanese newspaper, revealed a significant decline in support for nuclear power technology across most countries. The poll conducted by Ipsos Mori showed that the nuclear industry had the lowest amount of support (38 per cent) in comparison to other forms of technology used for generating electricity. While coal technology received 48 per cent support, solar, wind and hydro power received over 90 per cent support.⁸

Immediate Country Reactions Post Fukushima

As public concerns grew, different countries responded in different ways to the Fukushima accident. Table 1 describes the reactions of 36 countries in the immediate aftermath of the accident. The list has been compiled based on the official statements and reports made by countries that were very vocal about the accident. The table has been sequenced in the order of the severity of actions taken by countries.

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6. "Japan Admits that Fukushima Worker Died from Radiation", *The Guardian*, September 05, 2018, <https://www.theguardian.com/world/2018/sep/05/japan-admits-that-fukushima-worker-died-from-radiation>. Accessed on July 26, 2019.
 7. Manpreet Sethi, "The Asian Nuclear Power Landscape: A Contemporary Examination", in *Asian Strategic Review 2017: Energy Security in Times of Uncertainty* (New Delhi: Pentagon Press, 2018), p. 119.
 8. Richard Black, "Nuclear Power 'Gets Little Public Support Worldwide'", BBC, November 25, 2011, <https://www.bbc.com/news/science-environment-15864806>. Accessed on May 18, 2019.

Table 1: Countries Reactions Immediately Post Fukushima

S. No.	Country	Reaction/Policy Change
1.	Japan	<ul style="list-style-type: none"> • Shut down all reactors. • All nuclear reactors undergoing two phase stress tests. • Ongoing construction of reactors halted. • Prime minister called for reduced dependence on nuclear power.
2.	Germany	<ul style="list-style-type: none"> • Reviewed the safety of all German nuclear power plants. • Permanently shut down eight reactors. • Intends to shut down remaining reactors by 2022. • Has decided to completely phase out nuclear energy.
3.	Italy	<ul style="list-style-type: none"> • Plans to reintroduce nuclear power given up. • Declared a nuclear moratorium for one year. • Passed a referendum with about 94% of its votes against government plans to start new nuclear power projects.
4.	Switzerland	<ul style="list-style-type: none"> • Banned the construction of new reactors. • Decision to gradually phase out nuclear power.
5.	Belgium	<ul style="list-style-type: none"> • Decision to continue with gradual phase out which was taken before the Fukushima accident.
6.	Bulgaria	<ul style="list-style-type: none"> • Plans to construct the Belene national plant terminated in 2012; the decision was influenced by other financial factors too.
7.	Mexico	<ul style="list-style-type: none"> • Abandoned plans to build new reactors and focus on natural gas instead.
8.	Venezuela	<ul style="list-style-type: none"> • Ceased plans of developing nuclear power project. • Energy Ministry ordered to look for alternate sources of renewable energy.
9.	Kuwait	<ul style="list-style-type: none"> • Shelved its civil nuclear project. Multiple factors influenced this decision, including the Fukushima accident.
10.	Indonesia	<ul style="list-style-type: none"> • Government announced a slowdown in its nuclear development.

11.	Israel	<ul style="list-style-type: none"> • Reconsidered nuclear projects and stated that it was “unlikely” that it would develop a nuclear project in the near future.
12.	The Philippines	<ul style="list-style-type: none"> • Was considering the revival of its nuclear project, but the Fukushima accident resulted in cancelling it yet again.
13.	Taiwan	<ul style="list-style-type: none"> • Suspension of plants until the completion of a safety review. • The president called for reduced dependence on nuclear power.
14.	Thailand	<ul style="list-style-type: none"> • The prime minister directed the Energy Ministry to review plans for establishing nuclear power plants. • Also asked to study in detail the emergency measures in nuclear plants during crises and the potential of a nuclear power plant being a target for terrorists.
15.	Australia	<ul style="list-style-type: none"> • Reaffirmed its already existing position of staying non-nuclear.
16.	Luxembourg	<ul style="list-style-type: none"> • Reaffirmed its already existing position of staying non-nuclear.
17.	Greece	<ul style="list-style-type: none"> • Reaffirmed its already existing position of staying non-nuclear.
18.	Latvia	<ul style="list-style-type: none"> • Reaffirmed its already existing position of staying non-nuclear.
19.	China	<ul style="list-style-type: none"> • Suspended authorisation of construction of new reactors until a safety review was completed. • Resumed projects soon after with continued commitment to develop nuclear power, with increased emphasis on safety.
20	Canada	<ul style="list-style-type: none"> • Continued commitment to develop nuclear power with increased emphasis on safety.
	Czech Republic	<ul style="list-style-type: none"> • Continued plans to build two more units.

21.	France	<ul style="list-style-type: none"> • Nuclear power plants underwent stress tests. • Continued with its existing nuclear plans, stressing on safety. • Holland government in 2012 declared gradual nuclear reduction. However, other reasons influenced this decision.
22.	Finland	<ul style="list-style-type: none"> • Reconfirmed plans to build a nuclear power station.
23.	Hungary	<ul style="list-style-type: none"> • Continued commitment to develop two more nuclear reactors.
24.	India	<ul style="list-style-type: none"> • Continued commitment to develop nuclear power. • However, the state government of West Bengal denied permission to construct a new facility in a town in West Bengal and construction of two power plants in Tamil Nadu was delayed.
25.	Niger	<ul style="list-style-type: none"> • Continued commitment to build civil nuclear programme, with increased emphasis on safety.
26.	Pakistan	<ul style="list-style-type: none"> • Continued commitment to develop nuclear power, with increased emphasis on safety.
27.	South Korea	<ul style="list-style-type: none"> • Continued commitment to develop nuclear power, with increased emphasis on safety.
28.	Slovakia	<ul style="list-style-type: none"> • Continued commitment to develop nuclear power, with increased emphasis on safety.
29.	South Africa	<ul style="list-style-type: none"> • Continued commitment to develop nuclear power, with increased emphasis on safety.
30.	Spain	<ul style="list-style-type: none"> • Called for review of existing nuclear plants.
31.	Sweden	<ul style="list-style-type: none"> • Continued commitment to develop nuclear power, with increased emphasis on safety.
32.	Turkey	<ul style="list-style-type: none"> • Reaffirmed its plan of continuing to build their first reactor.
33.	Ukraine	<ul style="list-style-type: none"> • Continued commitment to develop nuclear power, with increased emphasis on safety.
34.	United Kingdom	<ul style="list-style-type: none"> • Continued with its existing nuclear policies and plans, with additional emphasis given to the safety aspect.
35.	United States of America	<ul style="list-style-type: none"> • Continued with its existing nuclear policies and plans, with additional emphasis given to the safety aspect.

As elucidated in the table above, different countries reacted to the accident in different ways. While some countries decided to do away with nuclear power for good, others decided to continue with their existing nuclear power programmes. The accident also instigated a few other countries that were considering developing their civil nuclear programmes to give up their plans. Almost every country that owned nuclear power technology reviewed and reassessed its systems and practices, and tried to enhance its safety mechanisms. However, not all countries decided to do away with nuclear technology. In countries that were struggling with power shortages: the accident did not cause any major policy change. However, it did trigger all nuclear power countries to review their safety framework.

ASSESSING THE CURRENT GLOBAL NUCLEAR TREND

As is evident from the above analysis, the effects of the 3/11 nuclear accident were not limited to Japan but caused considerable consequences to the future of the nuclear energy industry as a whole. The accident happened at a time when many countries were considering the nuclear option. However, the accident prompted the shelving of plans for countries that had concerns about nuclear safety.

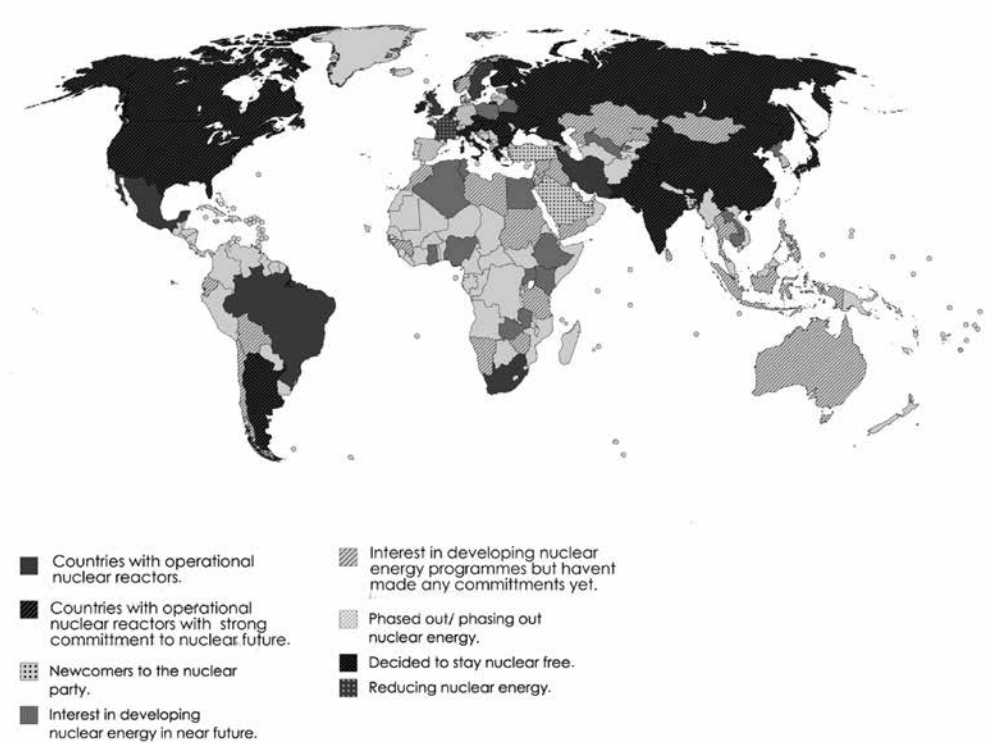
Eight years after Fukushima, the current nuclear trend is not necessarily all downhill. Even if the total number of operational reactors may have reduced, the nuclear generation capacity of the existing reactors has not. According to the World Nuclear Association, global nuclear generation has risen consistently from 2012 to 2017 with output of 142 TWh more than what it was in 2012.⁹ In addition, with the population growth expected to see a pronounced rise, the demand for energy, especially renewable energy, is also expected to rise more significantly. While other sources of renewable energy have greater support from the civil society, they

9. "Nuclear Power in the World Today", World Nuclear Association, <http://www.world-nuclear.org/information-library/current-and-future-generation/nuclear-power-in-the-world-today.aspx>. Accessed on May 17, 2019.

have their own share of challenges and limitations as well. In this regard: nuclear energy seems to be a worthy option towards achieving a clean energy future. In this context, let's look at the current global status of nuclear power to better understand and analyse the future of nuclear energy.

A graphic representation presented below (Fig 1) organises countries on various parameters to enable the understanding of the position of nuclear power in the world today. The countries marked in dark grey are the ones with operational nuclear reactors. The countries coloured in dark grey with black diagonal stripes represent the countries that have operational nuclear reactors and are committed to nuclear energy in their future. These countries are either developing their nuclear capabilities or are planning to do so. The countries coloured in light grey with black dots are the ones that are just joining the nuclear party. They are in the process of constructing their nuclear reactors. Countries in grey are the ones that are currently developing their nuclear power projects. They have either signed nuclear cooperation agreements or are in talks with other countries regarding the same and plan to construct their reactors soon. Grey with horizontal white stripes represents the countries that have at some point shown interest in developing nuclear energy but have not committed to it yet. They are mostly considering the nuclear energy option at the policy discussion level. The countries in white with black checks are the ones with operational reactors that plan to phase out nuclear power gradually. Likewise, the countries marked in black with white checks are the ones that have decided to stay non-nuclear. The countries in dark grey with white dashes are the ones with operational reactors that plan to scale down their nuclear capacities.

Fig 1: Current Global Status of Nuclear Energy Policies



Source: Data compiled by author from IAEA, World Nuclear Association and various newspaper articles.

Assessing the Nuclear Uptrend: The True Blues of Nuclear Energy

As depicted in the table above, there are currently 32 countries with operational nuclear reactors. They contribute to about 11 per cent of the global electricity.¹⁰ An overall slightly upward trend is seen among these countries, with about 17 countries remaining committed to nuclear energy. Among these countries, China, India, Russia and the United States have been developing robust nuclear energy policies. China, which has 46 nuclear reactors, is in the process of constructing 15 more.¹¹

10. Ibid.

11. China, "Peoples Republic of, Country Statistics", Power Reactor Information System, IAEA.org, <https://pris.iaea.org/PRIS/CountryStatistics/CountryDetails.aspx?current=CN>. Accessed on June 14, 2019.

China, India, Russia and the United States have been developing robust nuclear energy policies. China, which has 46 nuclear reactors, is in the process of constructing 15 more. The Chinese government is expected to overtake the United States to become the global leading producer of nuclear energy.

Considering the pace of its development in civil nuclear energy, the Chinese government is expected to overtake the United States to become the global leading producer of nuclear energy.¹² In fact, nuclear energy is a vital part of its Belt and Road Initiative (BRI). India, likewise, is planning to develop its nuclear infrastructure project substantially. With nuclear energy contributing to just 3 per cent of its electricity generation (in 2016),¹³ the government plans to increase this figure to 25 per cent by 2050 and, hence, has been focussing on increasing its installed nuclear capacity.¹⁴ Though the pace has been slow due to a few challenges, the government's support for it continues to hold good. Russia, which is a leading player in nuclear technology, has ambitious plans in store. Russia's 2003 energy strategy calls for a cut-back in natural gas for power supply by doubling nuclear power generation by the year 2020. The country has 35 nuclear power stations¹⁵ and is rapidly exporting its nuclear technology to other countries. In 2017, Russia was said to be working on 20 nuclear reactors for exports. It is also experimenting with a floating nuclear power plant. Another leading figure in nuclear technology is the USA. As of 2016, the USA

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12. Miles A Pomper, "China Has Big Plans for Its Nuclear Energy Industry. But Will They Pan Out?" *World Politics Review*, April 29, 2019, <https://www.worldpoliticsreview.com/articles/27799/china-has-big-plans-for-its-nuclear-energy-industry-but-will-they-pan-out>. Accessed on June 3, 2019.
 13. Aniruddh Mohan, "The Future of Nuclear Energy in India", *ORF Occasional Papers*, August 9, 2016, <https://www.orfonline.org/research/the-future-of-nuclear-energy-in-india/>
 14. "Nuclear Power in India." World Nuclear Association, <http://www.world-nuclear.org/info/Country-Profiles/Countries-G-N/India/>. Accessed on June 10, 2016.
 15. Ben Arris, "Russia's Nuclear Power Exports Are Booming", *The Moscow Times*, May 9, 2019, <https://www.themoscowtimes.com/2019/05/09/russias-nuclear-power-exports-are-booming-a65533>. Accessed on June 10, 2019.

was the largest producer of nuclear energy.¹⁶ It is currently focussing on nuclear research and development and energy commerce.

Japan, which saw a major pushback in its nuclear power projects after the 2011 Fukushima disaster, is also making a comeback.¹⁷ It has begun to restart its power plants gradually after the passage of stringent safety clearances. France, where 70 per cent of the electricity generation is through nuclear power, has been at the forefront of nuclear energy development. However, the country is reducing its dependence on nuclear energy in a move to reorganise its energy basket.

France, where 70 per cent of the electricity generation is through nuclear power, has been at the forefront of nuclear energy development. However, the country is reducing its dependence on nuclear energy in a move to reorganise its energy basket.

Finland, where nuclear energy is contributing to the production of 30 per cent of its electricity, is seeking to further boost this figure to 60 per cent. With the construction of one more nuclear reactor in progress and the planning of another one in tow, the Finnish government is bidding to replace coal by cleaner forms of energy.¹⁸ The Czech government, although facing financing troubles, envisages nuclear energy becoming the main source of electricity production in the country.¹⁹ In the case of Hungary, about 50 per cent of the electricity in the country is being generated by nuclear power. The Hungarian government is planning to further enhance

16. "Nuclear Power Producing Countries' Ranking", *Parcol News*, December 15, 2017, <https://www.parcolnews.com/2017/12/top-nuclear-power-producing-countries/>. Accessed on May 12, 2019.

17. "Japan Plans Carbon Emission Cuts, More Nuclear Energy", *The Rahnuma Daily*, <https://www.therahnuma.com/japan-plans-carbon-emission-cuts-more-nuclear-energy/>. Accessed on June 15, 2019.

18. "Nuclear Power in Finland", World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/finland.aspx>. Accessed on June 14, 2019. Also see "Energy Policies of IEA Countries: Finland 2013", IEA (Paris: 2013), <https://doi.org/10.1787/9789264190788-en>. Accessed on May 14, 2019.

19. Jo Harper, "Czech Republic Weighs Nuclear Options", *DW.com*, April 17, 2018, <https://www.dw.com/en/czech-republic-weighs-nuclear-options/a-43419787>. Accessed on May 18, 2019.

this figure by building two more reactors.²⁰ In Slovakia, nuclear power contributes to generating half of its electricity and the government plans to continue this momentum by signing contracts with Rosatom for nuclear fuel supply for the years 2022 to 2026 and is even considering extending it further.²¹ Slovenia, too is considering increasing its nuclear capacity.²² Romania, likewise, has strong government support to develop nuclear power with nuclear energy contributing to approximately 20 per cent of its electricity.²³ Ukraine is also focussed on increasing its nuclear energy capacity. Currently, half of the country's electricity is generated by nuclear power and the government intends to keep a substantial share of nuclear energy in its energy basket.

In the case of the United Kingdom, nuclear energy is an important component in its energy basket too, with about 20 per cent of its electricity generated by nuclear energy. Although half of its existing nuclear capacity is anticipated to be retired by 2025, the government has begun constructing a new generation of nuclear power plants. Nuclear power has also been a significant part of Canada's energy basket. In fact, in 2016, nuclear energy provided 61 per cent of Ontario's electricity generation, and in 2018, a decision was taken to enhance its reliance on nuclear energy further.

Argentina, which has three nuclear reactors, is in the process of signing a nuclear deal worth \$8 billion with China for the construction of a new reactor.²⁴ The Armenian government too, apart from renewing the operating

20. "Nuclear Power in Hungary", World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/hungary.aspx>. Accessed on May 19, 2019.

21. "Russia and Slovakia Agree to Continue Cooperation", *Nuclear Engineering International*, June 11, 2019, <https://www.neimagazine.com/news/newsrussia-and-slovakia-agree-to-continue-co-operation-7254850>. Accessed on June 20, 2019.

22. "Nuclear Power in Slovenia", World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/slovenia.aspx>. Accessed on June 1, 2019.

23. "Nuclear Power in Romania", World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/romania.aspx>. Accessed on June 24, 2019.

24. "Argentina, China Still Discussing Nuclear Power Project: Undersecretary", Reuters, April 2, 2019, <https://www.reuters.com/article/us-china-nuclearpower-argentina/argentina-china-still-discussing-nuclear-power-project-undersecretary-idUSKCN1RE0O5>, Accessed on June 13, 2019.

lifetime of its nuclear plant, has begun considering development of a new unit.²⁵ Pakistan too has been bolstering its nuclear power project. It currently has five nuclear power plants but plans to increase this capacity by building 32 nuclear power plants by 2050.²⁶

Newcomers to the Nuclear Party

There are five new additions to the nuclear club. Bangladesh began construction of its first nuclear unit in 2017, followed by construction of a second unit in the subsequent year. It is expecting the first unit to be commissioned in 2023. Belarus too has its first nuclear power plant under construction. Construction of Saudi Arabia's first reactor too is almost complete. Turkey has also begun the construction of its nuclear power plant in 2018. There are plans to construct three more plants. Likewise, the UAE recently completed the construction of its first unit.²⁷

Prospective Entrants to the Nuclear Club

Approximately 20 countries are now in the process of either signing cooperation deals with other countries, developing legal and regulatory infrastructure, or preparing for the construction of nuclear plants. They include countries like Nigeria, which is in talks with the Russian State Nuclear Energy Corporation (Rosatom) to start the construction of nuclear power plants soon, with an official even having acknowledged that the talks between the countries have reached an "advanced stage".²⁸

25. "Nuclear Power in Armenia", World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/countries-a-f/armenia.aspx>. Accessed on June 14, 2019.

26. Rabia Akhtar, "Pakistan's Nuclear Energy Vision 2050", *South Asian Voices*, March 6, 2014, <https://southasianvoices.org/pakistans-nuclear-energy-vision-2050/>. Accessed on June 12, 2019.

27. "UAE Recently Completed the Construction of its First Unit", *The Arab Weekly*, April 1, 2018, <https://theArabweekly.com/arab-worlds-first-nuclear-reactor-completed-uae-cooperation-south-korea>. Accessed on June 14, 2019.

28. "Nigeria Engages Rosatom on Nuclear Development", *Power Engineering*, June 11, 2019, <https://www.power-eng.com/articles/2019/06/nigeria-engages-rosatom-on-nuclear-development.html>. Accessed on June 19, 2019.

Uzbekistan is expected to start construction of its nuclear power plant in 2022. Cambodia, too, has nuclear cooperation agreements with Russia and China to develop nuclear energy for peaceful purposes.

Algeria plans to have its first nuclear plant by 2029.²⁹ Tunisia, which plans to replace gas with nuclear energy, signed a Memorandum of Understanding (MoU) with Russia in 2015 for the construction and operation of nuclear power plants and research reactors. The Zambian government too is in the process of developing its nuclear power programme. Ghana is expecting to produce nuclear energy from 2029 onwards.³⁰ Kenya has also joined the nuclear bandwagon. It was expected to start building its nuclear power plant by 2027

but has revised the date and postponed it to 2036.³¹ In 2018, Uganda signed a deal with China for the construction and operation of a nuclear power plant. It has also signed an MoU with Rosatom for nuclear cooperation. Earlier this year, Ethiopia also signed an agreement with Russia to build a nuclear power plant.

Egypt, too, is expecting to start the construction of its nuclear power plant by 2020.³² Kuwait, which had shelved its plans owing to financial concerns, started talks with Russia in 2018 to discuss the construction of a nuclear power plant.³³ Uzbekistan is expected to start construction of its nuclear

29. "Algeria Aims to Become a Nuclear Power Producer by 2029", *The Economist*, October 23, 2014, <http://country.eiu.com/article.aspx?articleid=1742415758&Country=Algeria&topic=Economy&subtopic=Forecast&subsubtopic=Policy+trends&u=1&pid=801443464&oid=801443464>. Accessed on May 20, 2019.

30. "Nuclear Energy for Power Production to Begin 2029", Ghana Atomic Energy Commission, June 29, 2018, <https://gaecgh.org/nuclear-energy-for-power-production-to-begin-2029/>. Accessed on June 12, 2019.

31. Patrick Alushula, "Kenya Now Pushes Nuclear Power Plant Plan to 2036", *Business Daily*, September 25, 2018, <https://www.businessdailyafrica.com/economy/Kenya-now-pushes-nuclear-power-plant-plan-to-2036/3946234-4777866-b05oauz/index.html>. Accessed on June 22, 2019.

32. "El Dabaa Nuclear Power Plant", Power Technology, <https://www.power-technology.com/projects/el-dabaa-nuclear-power-plant/>. Accessed on June 14, 2019.

33. Baset Asaba, "Rosatom In Talks To Build Nuclear Plant In Kuwait", *Middle East Utilities*, January 26, 2018, <https://www.utilities-me.com/article-5236-rosatom-in-talks-to-build-nuclear-plant-in-kuwait>. Accessed on June 21, 2019.

power plant in 2022. Cambodia, too, has nuclear cooperation agreements with Russia and China to develop nuclear energy for peaceful purposes. Laos also signed an MoU in 2016 with Rosatom that is helping in the designing, construction and operation of nuclear plants.³⁴ The Government of Estonia has approved a nuclear power plant to be built by 2023.³⁵ Poland is expecting its first nuclear plant to start operating in 2033.³⁶

There are about 31 other countries that have expressed interest in nuclear power but have not made any commitment yet.

Betwixt and Between

Apart from these countries, there are about 31 other countries that have expressed interest in nuclear power but have not made any commitment yet. For example, in 2014, Sri Lanka had listed nuclear power as a possible option to generate power in the future. This was put across in a study undertaken by the Ceylon Electricity Board which was considering Sri Lanka's long-term electricity generating capacities and options.³⁷ Mongolia too has been contemplating development of nuclear power, considering its well-endowed uranium reserves.³⁸ Indonesia has been deliberating about nuclear energy for some time now but has not made any commitment owing to safety concerns. The debates are still on and it is expected to have its first experimental nuclear power plant by 2030. The Philippines, which

34. Prashanth Parameswaran, "What's Behind Russia's New Nuclear Pact With Laos?", *The Diplomat*, April 25, 2016, <https://thediplomat.com/2016/04/whats-behind-russias-new-nuclear-pact-with-laos/>. Accessed on May 19, 2019.

35. "Atomic Policy in Estonia", *Nuclear Heritage.net*, http://www.nuclear-heritage.net/index.php/Atomic_Policy_in_Estonia. Accessed on June 13, 2019.

36. "Poland Expects First Nuclear Power Plant to Start in 2033", *Reuters*, November 23, 2018, <https://www.reuters.com/article/us-poland-nuclearpower/poland-expects-first-nuclear-power-plant-to-start-in-2033-idUSKCN1NS1DB>. Accessed on June 11, 2019.

37. "Sri Lanka Eyes Nuclear Power Plant after 2030", *Lanka Business Online*, January 13, 2015, <https://web.archive.org/web/20150112182058/http://www.lankabusinessonline.com/news/sri-lanka-eyes-nuclear-power-plant-after-2030/894022769>. Accessed on June 16, 2019

38. Rujun Shen, "Mongolia Eyes First Nuclear Power Plant by 2020: MonAtom", *Reuters*, April 7, 2007, <https://www.reuters.com/article/us-mongolia-nuclear/mongolia-eyes-first-nuclear-power-plant-by-2020-monatom-idUSTRE73625A20110407>. Accessed on May 19, 2019.

imports about 90 per cent of its energy, has been considering adding nuclear in its mixed energy basket in the future.³⁹ Thailand, likewise, is considering developing its nuclear power facilities soon. The previous King of Tonga, Tupou 5th had also expressed interest in developing nuclear power, but the idea did not gain much support.⁴⁰

Bahrain, which had plans to start operating its nuclear power plant by 2017, had to defer it. In 2018, the electricity and water affairs minister of Bahrain, reaffirmed the country's interest in adopting nuclear energy and even invited a nuclear expert to discuss the prospects of nuclear energy in Bahrain.⁴¹ Recently, in 2017, even Iraq showed interest in developing nuclear power reactors. In a United Nations General Assembly summit, the foreign minister of Iraq requested assistance from countries to help it develop nuclear power for peaceful purposes.⁴² Israel, which was considering developing nuclear power, abandoned its plans post Fukushima. While the interest was rekindled again in 2015 in response to the worldwide clamour for reducing greenhouse emissions, the future of nuclear energy in Israel seems obscure and uncertain. Jordan is also planning on joining the nuclear energy bandwagon by building small modular nuclear reactors. The Ministry of Energy and Mineral Resources of Jordan is currently conducting a comprehensive study on the same. There were discussions among the higher echelons of policy-makers in Lebanon to develop nuclear energy in 2012. The then Prime Minister Najib Mikati not only spoke to officials from the IAEA but also discussed it with

39. Ronnel W. Domingo, "Revival of Nuclear Power Plans Seen", *Inquirer.net*, December 26, 2018, <https://business.inquirer.net/262735/revival-of-nuclear-power-plans-seen>. Accessed on May 20, 2019. Also see Nur Azha Putra and Philip Andrews-Speed, "Prospects for Nuclear Power in ASEAN", *The Diplomat*, June 28, 2018, <https://thediplomat.com/2018/06/prospects-for-nuclear-power-in-asean/>. Accessed on May 19, 2019.

40. "King says Tonga Should Move to Nuclear Power", *North West Asian Weekly*, June 17, 2010, <http://nwasianweekly.com/2010/06/king-says-tonga-should-move-to-nuclear-power/>. Accessed on June 19, 2019.

41. "Minister Receives Nuclear Expert", Press Release, *Electricity and Water Authority*, Government of Bahrain, June 26, 2018, <http://www.ewa.bh/en/Media/PressReleases/Pages/Minister-receives-nuclear-expert.aspx>

42. "Iraq Asks UN for Help to Build New Nuclear Power Reactor", *Financial Express*, September 24, 2017, <https://www.financialexpress.com/world-news/iraq-asks-un-for-help-to-build-new-nuclear-power-reactor/868142/>. Accessed on May 19, 2019.

Lebanese scientists as well, after which he asked for a study to be undertaken on the same. In 2010, the Syrian government undertook a long-term study to understand the future energy needs of the country and develop a strategy based on it. The study indicated that a nuclear power plant could perhaps enter its electricity generating system after 2020.⁴³ Yemen is also developing its nuclear power project and expects to have it started around 2035.⁴⁴

The Republic of Guinea, which had discovered substantial deposits of uranium recently, has also engaged in discussing its nuclear future with the IAEA.⁴⁵ However, no significant commitment has been made in this regard yet. Libya too has showed significant interest in developing its nuclear energy shown project but progress remains uncertain. Morocco, which is anticipating a significant increase in electricity consumption in the near future, is similarly considering adoption of nuclear energy. Sudan is in discussions with Russia to develop its nuclear power project.⁴⁶ Tanzania, which has huge uranium reserves, has also been considering developing nuclear energy.⁴⁷ Namibia, which has significant uranium reserves, has shown interest in developing nuclear energy too.⁴⁸ Rwanda has signed an agreement with Rosatom to help in building a nuclear research centre in the next couple of years. It hopes to extend the application of nuclear energy for electricity generation along with other purposes.⁴⁹

43. Syrian Arab Republic, Country Nuclear Power Profiles, IAEA, <https://cnpp.iaea.org/countryprofiles/SyrianArabRepublic/SyrianArabRepublic.htm>. Accessed on May 21, 2019.

44. "Emerging Nuclear Countries", World Nuclear Organisation, <http://www.world-nuclear.org/information-library/country-profiles/others/emerging-nuclear-energy-countries.aspx>. Accessed on May 18, 2019.

45. Will Ross, "Guinea in Nuclear Energy Ambition", *BBC*, August 23, 2007, <http://news.bbc.co.uk/2/hi/africa/6961067.stm>. Accessed on May 23, 2019.

46. "Sudan, Russia to Sign Accord to Develop Nuclear Power: SUNA Agency", Reuters, March 13, 2018, <https://af.reuters.com/article/topNews/idAFKCN1GP0ME-OZATP>. Accessed on May 21, 2019.

47. Aabha Dixit, "URAM-2018: Five Years on, Tanzania's Progress in Uranium Exploration", IAEA, June 18, 2018, <https://www.iaea.org/newscenter/news/uram-2018-five-years-on-tanzanias-progress-in-uranium-exploration>. Accessed on May 20, 2019.

48. "Uranium in Namibia", World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/countries-g-n/namibia.aspx>. Accessed on May 16, 2019.

49. "Rwanda to Get Nuclear Research Centre in 5 Years", *Rosatom Overseas*, April 25, 2019, <http://www.rusatom-overseas.com/media/mass-media-about-us/dominican-republic-to-get-nuclear-research-centre-in-5-years.html>. Accessed on June 18, 2019.

Bolivia, which had showed interest in developing a nuclear power programme since the last few years, was grappling with various challenges including problems related to the storage, transit and deposit of nuclear and toxic waste which is deemed unconstitutional. However, in 2019, it was announced that the country is working on developing new nuclear laws. Chile has also considered the nuclear energy option and is planning to develop it after 2020.⁵⁰

In Jamaica, interest in developing the country's nuclear power capabilities in the future—owing to its extensive use of imported fossil fuels, increasing electricity prices and the advancement of smaller, more economical nuclear reactors—is evident across party lines.⁵¹ Albania showed interest in developing nuclear energy in 2007. However, it has not been able to take it ahead due to concerns from its neighbouring country, Montenegro.⁵² Azerbaijan too is discussing the scope of developing nuclear power with Russia.⁵³ Some other countries like Denmark, Ireland and Italy that do not possess nuclear reactors of their own, import nuclear energy from other countries through regional transmission grids.

The Anti-Nuclear Club

While a substantial number of countries are showing interest in developing nuclear power, there also are several countries that have taken a more anti-nuclear stand. In a few countries, developing nuclear energy in itself is unconstitutional. As for example, in the case of Austria, which interestingly, has had a nuclear power plant since the 1970s, but has not made it operational due to the anti-nuclear sentiments of its citizens who pressurised the government to do away with it. Hence, in 1997, the country

50. "Emerging Nuclear Energy Countries", World Nuclear Organisation, <http://world-nuclear.org/information-library/country-profiles/others/emerging-nuclear-energy-countries.aspx>. Accessed on June 18, 2019.

51. "Inside the Caribbean's Only Nuclear Reactor", *Power Technology*, November 22, 2017 <https://www.power-technology.com/features/inside-caribbeans-nuclear-reactor/>.

52. "Environmental Risks Arise from Hydro-Plant in Vjosa Riverbed", *Tirana Times*, May 22, 2019, <http://www.tiranatimes.com/?p=141786>. Accessed on May 29, 2019.

53. "Rosatom Suggests Implementing NPP Construction Project to Azerbaijan, Says Source", *Tass.com*, December 12, 2018, <http://tass.com/economy/1035711>. Accessed on June 14, 2019.

passed a legislation to remain anti-nuclear. From 2015 onwards, Austria even stopped importing nuclear sourced electricity in its attempt to be “completely nuclear free”. Similarly, according to the Electricity Regulation Act of 1999, it is prohibited to develop nuclear energy in Ireland.

Understandably, many countries which are located at places that are prone to volcanos and earthquakes have decided to steer away from nuclear energy due to safety concerns. Greece, for example, has taken a decision not to pursue nuclear energy considering the frequent occurrence of earthquakes there and due to its size. Taiwan, which is situated in a seismically active zone, has also grappled with public protests and anti-nuclear movements amidst safety concerns. In 2019 the Taiwanese government declared that the existing nuclear power plants would not be granted any life extensions, aiming to phase out nuclear energy by 2025.⁵⁴

A few countries have also decommissioned their nuclear plants like in the case of Lithuania, which had to decommission two nuclear reactors as a requisite to join the European Union. The Krško nuclear power plant, co-owned by Slovenia and Croatia, is also due to be decommissioned in 2043.⁵⁵

Strong public opposition to nuclear power development has also resulted in the abandonment of nuclear power projects. For example, countries like Germany which faced major civil disapproval about nuclear technology, decided to permanently shut eight of its reactors immediately after Fukushima. This was a part of a bigger plan of energy transition called *Energiewende*. The *Energiewende* plans on moving the country towards a low carbon economy and developing renewable energy, while phasing out nuclear power at the same time. Germany intends to shut down the remaining reactors by 2022.⁵⁶ Luxembourg was considering building a nuclear power plant owing to its

54. “Taiwan Government Maintains Nuclear Phase-Out”, World Nuclear News, February 1, 2019, <http://world-nuclear-news.org/Articles/Taiwan-government-maintains-nuclear-phase-out>. Accessed on May 20, 2019.

55. Vedran Pavlic, “Slovenia Expanding Nuclear Power Plant of Border with Croatia?”, Total Croatia News, September 13, 2017, <https://www.total-croatia-news.com/business/21979-slovenia-expanding-nuclear-power-plant-of-border-with-croatia>. Accessed on June 12, 2019.

56. Justin Huggler, “Germany Faces Growing Calls to Delay Phase-Out of Nuclear Energy”, *The Telegraph*, June 6, 2019, <https://www.telegraph.co.uk/news/2019/06/06/germany-faces-growing-calls-delay-phase-out-nuclear-energy/>. Accessed on June 15, 2019.

A recent addition to the naysayers to nuclear energy is South Korea which has a vibrant nuclear power industry. Public paranoia on the safety concerns of nuclear power, increasing exposes of corruption in the nuclear industry and nuclear accidents such as the Fukushima accident, have resulted in public distrust towards the nuclear industry.

energy crisis. However, with the opposition to it getting stronger, the government was forced to drop the project. Another case where public opinion has managed to change the course of nuclear power is that of Italy. Post Chernobyl, a referendum was held in Italy to decide the course of its nuclear future. With a significant anti-nuclear outcome, the nuclear plants were shut down. In 2008, nuclear debates reemerged in the country. However, soon after the Fukushima accident, a referendum was held again and an overwhelming majority of the people decided to continue to stay clear of nuclear energy, hence, plans to revive the nuclear programme were cancelled.

A recent addition to the naysayers to nuclear energy is South Korea which has a vibrant nuclear power industry. Public paranoia on the safety concerns of nuclear power, increasing exposes of corruption in the nuclear industry and nuclear accidents such as the Fukushima accident, have resulted in public distrust towards the nuclear industry. President Moon Jae-in won the election with his promise of gradually phasing out nuclear energy. Within a couple of months of taking power, he started developing policies to fulfil these promises. Switzerland, where nuclear energy powered 40 per cent of electricity needs, decided in a 2017 referendum to gradually phase out nuclear energy. This decision was influenced by the Fukushima accident, which saw widescale public protests to do away with nuclear energy.⁵⁷

Malaysia, too, which was well prepared to commence its nuclear power project, had to forsake it. The new Prime Minister Dr Mahathir Mohamad cancelled the nuclear project owing to concerns regarding the safe disposal of nuclear waste. In this regard, the leadership also plays a vital role in

57. "Switzerland Votes to Phase Out Nuclear Power", BBC, May 21, 2017, <https://www.bbc.com/news/world-europe-39994599>. Accessed on June 2, 2019.

determining the future of nuclear energy in a country.

There are also countries like France which want nuclear energy to continue in its energy basket, but are also reducing its share in the energy segment. In France, over 70 per cent of the electricity generation is through nuclear power. However, a new policy aims to reduce the figure to 50 per cent by 2035 by shutting down 14 reactors, in a move to reorganise the country's energy basket. France plans to increase the solar and wind power output by balancing it with the reduction of nuclear power.⁵⁸

It is interesting to note that public pressure is one of the biggest reasons for the countries to do away with nuclear energy. In this regard, an effective perception management and communication strategy could go a long way in clarifying the qualms that people have and help in promoting the development of nuclear energy. This proves the importance of public diplomacy of a country with its own people to develop sustainable policies.

An effective perception management and communication strategy could go a long way in clarifying the qualms that people have and help in promoting the development of nuclear energy. This proves the importance of public diplomacy of a country with its own people to develop sustainable policies.

ASIA: NUCLEAR RENAISSANCE 2.0?

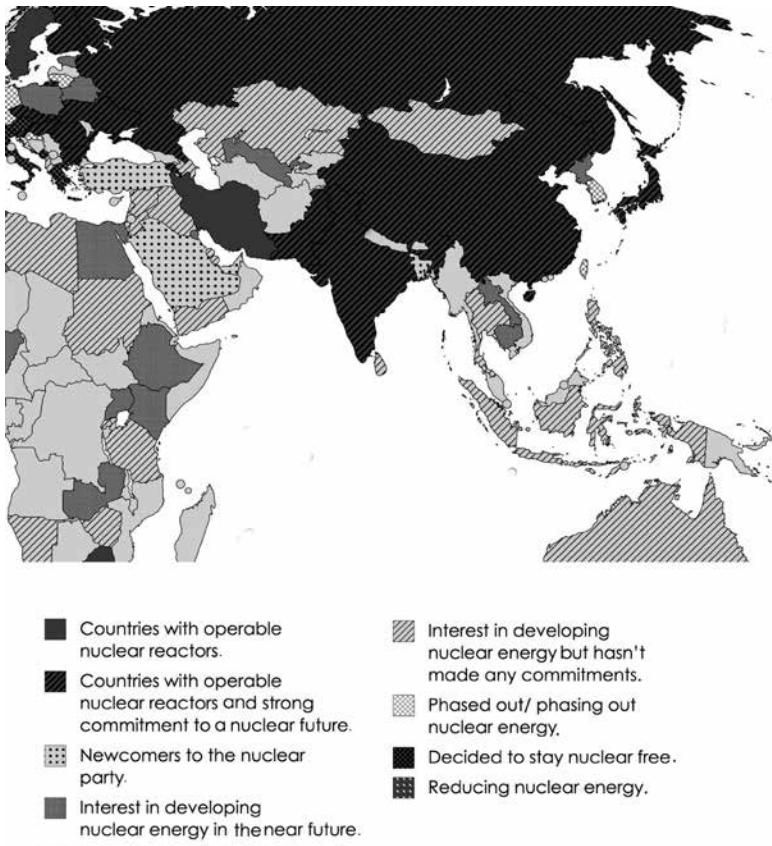
According to the IAEA, among the 31 countries that are operating 437 nuclear plants for electricity generation, 114 nuclear plants are in Asia.⁵⁹ This trend seems to be growing: the World Nuclear Association has stated that as of 2018, more than two-thirds of the reactors that were being

58. "Macron Clarifies French Energy Plans", World Nuclear News, November 27, 2018, <http://www.world-nuclear-news.org/Articles/Macron-clarifies-French-energy-plans>. Accessed on May 14, 2019.

59. "Atomic Power Plants in Asia", *RECAP Asia*, <http://recap.asia/climate-asia/Atomic-Power-Plants-in-Asia.html>. Accessed on June 12, 2019

constructed around with world were in Asia.⁶⁰ This leads to the question: is Asia witnessing a nuclear renaissance again?

Fig 2: Nuclear Energy Policies in Asia



As apparent in Fig 2 above, the nuclear energy trend in Asia gives a mixed picture, with a tilt towards a more positive trend. Asia was, in fact, at the forefront of the nuclear renaissance that emerged at the beginning of this century. As countries in the Asian continent were working towards rapid

60. "Asia's Nuclear Energy Growth", World Nuclear Association, <http://www.world-nuclear.org/information-library/country-profiles/others/asias-nuclear-energy-growth.aspx>. Accessed on May 19, 2010.

economic development, two important issues contributed to the nuclear appeal. First, an increase in electricity demand; and, second, the recognition of the problem of climate change and the need for more sustainable sources of energy. The growing interest in nuclear energy in the Asian countries was evident when, in the annual Association of Southeast Asian Nations (ASEAN) summit in Singapore in 2007, the Southeast Asian countries signed a declaration on climate change, energy and the environment. This declaration urged states to adopt more sustainable and cleaner forms of energy to tackle the issue of greenhouse gas emissions by “cooperating for the development and use of civilian nuclear power”.⁶¹ Amidst this period of nuclear optimism in Asia, the Fukushima accident in 2011 created a period of uncertainty in the development of nuclear energy. However, the region seems to be recovering from this hiatus and the nuclear energy trend seems to be on the upswing again.

Southern Asia

Southern Asia has been witnessing significant developments in the field of nuclear energy. In fact, according to a study, in the last decade, “the nuclear generation has more than doubled in India and Pakistan and more than tripled in China”.⁶² Among the eight Southern Asian countries, four countries show substantial commitment to a nuclear future. India is looking for cleaner and more sustainable sources of energy to feed its growing economy that is marred with an ailing energy infrastructure. India is currently planning on ratcheting up nuclear technology in its future energy mixes. Its discourse was set back until 2009 because of being out of the nuclear Non-Proliferation Treaty (NPT). Later on, the incompatibility between India’s civil liability law and international concords also complicated cooperation in acquiring foreign technology. However, regardless of this, India has managed to fare well for itself. It currently has 22 nuclear reactors and construction

61. Sethi, n. 7, pp. 118-119.

62. “Asia Remains Biggest Area for Nuclear Growth, Says Report”, *World Nuclear News*, October 24, 2017, <http://world-nuclear-news.org/Articles/Asia-remains-biggest-area-for-nuclear-growth,-says>. Accessed on June 25, 2019.

of seven more is underway. In Asia, after China, it is India that has been rapidly developing its nuclear power. India has also been developing its indigenous designs. While the government support for nuclear energy is strong, public acceptance remains a challenge. Mass protests were witnessed in the development of the Jaitapur nuclear power project and the Kudankulam nuclear power project. Even the state government of West Bengal has denied approval for the construction of nuclear reactors. To clear apprehensions about safety concerns, the Government of India is now trying to communicate with the public to garner support. While there are other challenges too, the government seems determined to tackle them and strengthen its nuclear power programme.

Pakistan's budding nuclear power project has 1,355 MWe operating capacity. Pakistan's government has shown immense interest in intensifying its civil nuclear project. However, considering that Pakistan is a non-signatory to the NPT because of its weapons programme, it has also faced challenges in the nuclear trade. But its strong developing ties with China are making Islamabad hopeful of expanding its nuclear energy capabilities. The Pakistan Atomic Energy Commission has expressed interest in building seven new reactors by 2030, with help from the Chinese.⁶³ This process has begun, with Pakistan currently constructing 2,300 MWe reactors with Chinese assistance.

Bangladesh, a country experiencing frequent power cuts, having a high dependence on fossil fuels, and being one of the countries most susceptible to the effects of climate change, has been ramping up its energy security policies to adapt to these challenges. In this regard, Bangladesh has developed its civil nuclear programme with the establishment of the Rooppur Nuclear Power Plant Company in 2015. The construction of the first reactor began in 2017 and officials estimate that the first unit will be commissioned in 2023, followed by the commissioning of the second unit in the succeeding year.⁶⁴

63. Thomas Latschan, "Nuclear Energy Booming in Asia", DW, March 11, 2016, <https://www.dw.com/en/nuclear-energy-booming-in-asia/a-19110848>. Accessed on June 23, 2019.

64. Laura Gill, "Construction Progresses on Bangladesh's First Nuclear Power Plant", IAEA, January 31, 2019, <https://www.iaea.org/newscenter/news/construction-progresses-on-bangladeshs-first-nuclear-power-plant>. Accessed on June 18, 2019.

Sri Lanka has also been exploring the possibility of developing a civil nuclear programme in the recent past. In 2010, the Sri Lankan government enabled its Atomic Energy Board to conduct a pre-feasibility study to assess the potential of generating power from 2025 onwards.⁶⁵ The following year, Colombo announced its decision to establish an Atomic Regulatory Council to commence development of nuclear power technology and address other concerns regarding radiation and nuclear safety. In 2015, Sri Lanka signed a civil nuclear cooperation agreement to enable knowledge sharing, capacity building, radioactive waste management and other nuclear developments. The government is also altering the Atomic Energy Authority Act No. 19 to make the relevant changes to meet the current and future requirements with regard to nuclear issues in the country.

While Nepal has not developed its nuclear power capabilities, it has taken steps towards developing its nuclear science capabilities. In 2007, the Government of Nepal adopted the National Nuclear Policy (NNP). The NNP has clearly indicated that nuclear science will be used only for peaceful purposes, i.e. for medical and agricultural applications. In fact, the background section in the NNP also includes energy in the scope of the peaceful uses of nuclear technology.⁶⁶ While the major countries in South Asia are developing their nuclear power capabilities, other countries like Afghanistan, Bhutan, Maldives and Nepal that have not shown interest in developing nuclear energy, have not decided to stay anti-nuclear either.

Southeast Asia

There is significant interest in nuclear energy among the Southeast Asian countries too. Studies and reports on nuclear energy development in ASEAN were mostly published by think-tanks or independent researchers. Thus, when the ASEAN Centre for Energy (ACE) published a “Pre-Feasibility Study on the Establishment of Nuclear Power Plants in ASEAN” in 2017, it generated a lot of interest. One of the most interesting points in the report

65. M. P. Ram Mohan, *Nuclear Energy and Liability in South Asia: Institutions, Legal Frameworks and Risk Assessment within SAARC* (New York: Springer, 2015), p. 77.

66. *Ibid.*, pp. 77-78.

Indonesia has shown interest in developing its civil nuclear project since the 1950s, but various challenges prevented it from advancing its plans each time. For example, it conducted a pre-feasibility test in 1995. However, the Asian slowdown, in addition to the discovery of the Natuna gas field, scaled back this project.

was that five of the 10 ASEAN states were described as “frontrunners” in establishing a civil nuclear power programme.⁶⁷

In 2016, the Ministry of Energy and Mines of Laos signed a Memorandum of Cooperation with Rosatom to collaborate in the designing, construction and operation of Laos’ nuclear power project. Cambodia, likewise, is deliberating over the use of nuclear power. The MoU signed with Rosatom concentrated on a research reactor but with consideration of nuclear power.⁶⁸ In 2016, Cambodia signed another MoU with Rosatom, according to which a nuclear energy information centre is to be

constructed to engage with, and educate, students and the public. In 2016, Cambodia also held discussions with the China National Nuclear Corporation (CNNC) regarding the construction of a nuclear power plant.

Indonesia has shown interest in developing its civil nuclear project since the 1950s, but various challenges prevented it from advancing its plans each time. For example, it conducted a pre-feasibility test in 1995. However, the Asian slowdown, in addition to the discovery of the Natuna gas field, scaled back this project.⁶⁹ It was only after a decade that Indonesia signed a nuclear cooperation agreement with Russia, under circumstances of major power shortages. The work began rapidly and the construction of the power plant was expected to start in 2010. However, this effort too got stalled as various

67. Eijas Ariffin, “Will we see Nuclear Energy in Southeast Asia?”, *The ASEAN Post*, July 11, 2018, <https://theaseanpost.com/article/will-we-see-nuclear-energy-southeast-asia>. Accessed on June 18, 2019.

68. “China, Cambodia Agree to Nuclear Energy Cooperation”, *World Nuclear News*, September 13, 2017, <http://www.world-nuclear-news.org/NP-China-and-Cambodia-agree-to-nuclear-energy-cooperation-1309174.html>. Accessed on June 10, 2019.

69. “Thousands Protest Against Indonesian Nuclear Plant”, *ABC.net*, June 12, 2007, <https://www.abc.net.au/news/2007-06-12/thousands-protest-against-indonesian-nuclear-plant/66650>. Accessed on June 14, 2019.

environmental groups and other local protesters posed objections. In 2011, the Fukushima disaster furthered the protests and safety concerns, considering that Indonesia was located in the Ring of Fire – an area around the Pacific Ocean, prone to a majority of the world’s earthquakes and tsunamis. The Indonesian government then decided to tweak the scope of its nuclear project and start off with the construction of a small reactor in Jakarta, instead of the original plans to build large units for the Java Bali grid. In December 2015, Minister for Energy and Mineral Resources Sudirman even stated that while Indonesia will continue to develop technology, it would, however, remain as a last resort for potential use post 2050.⁷⁰ However, the following year, Indonesia signed an agreement with China to develop high-temperature gas-cooled reactors, and as of now, Indonesia plans to start building the reactors around 2027.

Thailand, which majorly relies on fossil fuels, has also been drawn to the idea of developing its civil nuclear programme. Its new Power Development Plan 2010-30 has determined to start five 1,000 MWe units between 2020 and 2028.⁷¹ In 2017, Thailand signed an agreement with China to develop peaceful use of nuclear energy.

The Philippines is also gearing up to develop its nuclear power project. Although it already has a nuclear power plant which was built around 30 years

Malaysia too had strong plans to develop its nuclear energy programme. It undertook a feasibility test in 2008, with plans to operationalise its reactors by 2024. As per IAEA standards, the country had met all the requirements to develop its nuclear programme. But the new government has decided to scrap its nuclear project citing concerns of nuclear waste disposal as an important reason.

70 Ranga Prakoso, “Indonesia Vows No Nuclear Power Until 2050”, *Jakarta Globe*, December 12, 2015, <https://jakartaglobe.id/context/indonesia-vows-no-nuclear-power-2050>. Accessed on May 21, 2019.

71. “China, Thailand Agree to Nuclear Energy Cooperation”, *World Nuclear News*, April 5, 2017, <http://world-nuclear-news.org/Articles/China,-Thailand-agree-to-nuclear-energy-cooperatio>. Accessed on May 30, 2019.

ago, it is not operational. The nuclear power plant was built under the leadership of President Marcos in response to the 1973 oil crisis. However, Marcos was overthrown in 1986 and the new leadership under President Corazon decided not to operationalise the power plant. The Chernobyl disaster, along with public protests, also furthered this decision. Now, after a few decades, Philippines is once again considering restarting its civil nuclear power programme under the presidency of Rodrigo Duterte. Citing safety as the main concern, in 2016, he mandated a study on the potential of reopening the nuclear power plant. Russia, that is said to be persuading the Philippines to take up its nuclear project again, is rumoured to have sent experts from Rosatom to the Philippines for an inspection of the nuclear power plant.⁷² More recently, in March 2019, the IAEA sent a team of experts to review the infrastructure development of the Philippines for nuclear power. The Filipino government seems determined to develop nuclear energy, with Alfonso Cusi, the country's energy secretary, stating that it was "high time we put the framework in place to bring nuclear power into the energy mix. We should learn lessons from the past and catch up with the missed opportunities."⁷³

Vietnam, too, had an enthusiastic start in developing its civil nuclear capabilities. In 2006, it signed an agreement with Russia which was to help in the building and financing of two units of 1,200 MWe each. This was followed by a similar agreement with Japan in 2010. The project was moving well, with plans to begin construction in 2015 and have an operationalised nuclear power plant by 2025. However, in 2016, amidst the growing public debt, the Vietnamese government decided to rescind these plans, citing financial challenges. After the Fukushima accident, safety concerns also increased, with former President Truong Tan San admitting that the Fukushima disaster played an important factor in influencing the decision to scrap the nuclear power project.⁷⁴

72. "Philippines Considering Nuclear Energy" *The ASEAN Post*, March 22, 2019, <https://theaseanpost.com/article/philippines-considering-nuclear-energy>. Accessed on May 24, 2019.

73. Ibid.

74. David Albright, "Phased International Cooperation with North Korea's Civil Nuclear Programs", Institute for Science and International Security (ISIS), March 19, 2007, <http://www.isis-online.org/publications/dprk/CivilNuclearNK.pdf>. Accessed on June 25, 2019.

Like Vietnam, Malaysia too had strong plans to develop its nuclear energy programme. It undertook a feasibility test in 2008, with plans to operationalise its reactors by 2024. As per IAEA standards, the country had met all the requirements to develop its nuclear programme. But the new government has decided to scrap its nuclear project citing concerns of nuclear waste disposal as an important reason. However, with examples, such as that of the Philippines, a decision to do away with nuclear energy is not necessarily permanent and could also be reversed, depending on the changing leadership.

Other countries in the region like Brunei, Myanmar, Singapore and Timor Leste do not have any plans for nuclear power projects currently. But neither have they taken a strong stance against nuclear power. The developing nuclear energy landscape in Southeast Asia, along with domestic factors would perhaps influence these countries to take more proactive decisions regarding nuclear energy in the near future.

East Asia

East Asia has been displaying interesting trends in the nuclear energy domain. Japan, which experienced the horrors of both the nuclear bomb and a nuclear accident, immediately shut down all its reactors after Fukushima. The accident took a huge toll not only in terms of cost and logistics involved in the generation of electricity, but also had a huge impact on the psyche of the people. However, Japan has made an impressive comeback. While other countries called off their nuclear power programmes in the light of the Fukushima accident, Japan decided to continue to tread the nuclear path. Understanding the importance of nuclear energy, while also taking extra precautions to make sure another accident does not occur, Japan gradually started reopening its reactors. In 2018, Japan topped the list of countries with the highest increased amount of nuclear consumption in comparison to the previous year, with a growth rate of 68.9 per cent.⁷⁵

75. Firdevs Yüksel, "US Leads World in Nuclear Energy Consumption", *AA.com*, June 20, 2019, <https://www.aa.com.tr/en/americas/us-leads-world-in-nuclear-energy-consumption/1511161>. Accessed on June 21, 2019.

In June 2019, the Japanese government came out with its energy White Paper which called for a reduction in carbon emissions by using renewable sources, including nuclear energy.⁷⁶ Challenging times lie ahead for Japan, but it will be interesting to see how it manages the rebalancing of its energy basket, achieving more self-dependency and assuring thorough safety of the reactors while dealing with the public disapproval.

China is currently one of the leading countries in terms of development in nuclear energy. According to the World Nuclear Association, more than half of the world's nuclear plants are currently under construction in the Asian continent. Among the ones that are being constructed, almost 40 per cent are being built in China, and the rest of Asia accounts for the remaining 60 per cent. In fact, it is predicted that by 2030, with about 110 operational nuclear power plants, China will surpass the United States with the highest number of nuclear power plants connected to the grid.⁷⁷ After the Fukushima accident, the Chinese government suspended the construction of new power plants, and a thorough inspection of all safety regulations was made. The following year, China lifted this moratorium and has been bolstering its civil nuclear project ever since. Not only is China increasing its capacity to produce more nuclear energy, it is also trying to establish itself as the next big exporter of nuclear technology. China has been helping in building nuclear power stations in several countries as a part of its Belt and Road Initiative (BRI).

Taiwan, which had been getting a steady supply of about 20 per cent of electricity from nuclear reactors for the past three decades, is currently witnessing the phasing out of nuclear energy. Public disapproval for nuclear energy was always prevalent in Taiwan, however, after the Fukushima accident, the protests only increased. In February 2019, the Taiwanese government announced the abolishment of nuclear energy by 2025. Officials stated opposition from local government bodies and citizens, issues regarding

76. "Japan Plans Carbon Emission Cuts, More Nuclear Energy", *The Economic Times*, June 7, 2019, [//economictimes.indiatimes.com/articleshow/69687420.cms?from=mdr&utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst](https://economictimes.indiatimes.com/articleshow/69687420.cms?from=mdr&utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst). Accessed on June 10, 2019.

77. Latschan, n. 63.

nuclear waste disposal and decommissioning plans for active plants as reasons that prompted this decision.

South Korea, with nuclear energy contributing to 38 per cent of its electricity in 2003, had a well-established nuclear power project with more ambitious projects in tow. Under President Lee Myung Bak's visualisation of "Green Growth" as a part of the national development strategy, there were plans to increase the share of nuclear energy to generate electricity to 45 per cent by 2015. In addition, the South Korean nuclear sector also started expanding outwards. In 2009, the Korea Electric Power Corporation (KEPCO) beat other nuclear suppliers and won the bid to build four nuclear units in the UAE. However, this sanguine momentum was struck by the 2011 Fukushima accident. Not only did the accident bring up safety concerns among the people, it also exposed the shortcomings in safety management in nuclear power reactors in the country. As it turns out, a lot of sub-standard components were being used in five of the operational nuclear power plants, with fake certification. As the exposure threw light on scams and corruption within the nuclear industry, it also led to loss of public confidence. Approval ratings for nuclear energy also dropped immensely. The current President, Moon Jae-in, decided to gradually reduce the share of nuclear power in the country and not build any new plants. The future of nuclear energy in South Korea will most likely be dependent on the future governments—whether they decide to stick on to the current decision of nuclear phaseout or decide to once again bolster their nuclear power programme.

North Korea too has been interested in developing its civil nuclear energy since the 1950s. In 1959, it signed an agreement with the Soviet Union. In 1963, a research reactor was supplied by the Soviet Union to North Korea, which was operationalised in 1965. However, since the disintegration of the Soviet Union, the reactor is rumoured to be run only to produce iodine-131 for the purpose of thyroid cancer radiation therapy. In the 1970s, the Democratic People's Republic Korea (DPRK) started building a second research reactor and in the 1980s, it recognised that light water reactors were better suited for the country and started their development. In 1994,

The future of nuclear energy in Asia suggests a mixed picture but leaning towards a more positive and upbeat trend. Although affected by the Fukushima accident, the Asian countries seem to be drawn to the nuclear option yet again.

North Korea signed the US-North Korea Agreed Framework, with the United States. As per this framework North Korea agreed to conclude its graphite moderated nuclear reactor programme but, in return, asked for the construction of two light water reactors. However, this agreement was suspended in 2003. Again in 2005, North Korea pledged to complete all its nuclear programmes and sign the nuclear Non-Proliferation Treaty (NPT). It would allow international inspections in exchange for certain benefits such as becoming a recipient of energy aid

and normalisation of relations with the US and Japan among others.⁷⁸ In 2008, North Korea promised to end its nuclear programme with the eventual handing over of the nuclear devices to China in the near future. However, North Korea's nuclear testing in 2006, 2009 and 2013 raised questions about its promise of denuclearisation. Considering the secrecy and ambiguity around North Korea's nuclear programme—for both energy and weapons development—it is difficult to track North Korea's future trajectory in terms of nuclear energy.

New among the nuclear aspirants is Mongolia, which is blessed with abundant uranium resources. The country is currently exploring the possibility of developing a civil nuclear power programme and is at a nascent stage in this regard.

The future of nuclear energy in Asia suggests a mixed picture but leaning towards a more positive and upbeat trend. Although affected by the Fukushima accident, the Asian countries seem to be drawn to the nuclear option yet again. The economic and development climate in Asia is such now that many developing countries are looking for stable, independent and cleaner forms of energy that will support the pace of their development

78. Albright, n. 74.

while helping them to reduce greenhouse emissions as well. Nuclear energy in this regard ticks all the boxes.

CONCLUSION

The impact of the Fukushima accident evidently was not just limited to Japan. It influenced nuclear power programmes around the world. The global response to the Fukushima accident was heterogenous. For countries that were already grappling with issues of public discontent, this became a moment to call off, or reduce, their nuclear power programmes. However, for countries that were struggling with power shortages and were developing their civil nuclear projects, the accident did not cause any major policy change. However, it did make all the nuclear power countries review their safety frameworks. The differences in policy responses to Fukushima also, to an extent, reflect the level of trust people have in their governments. It is possible that it could also be linked to the larger cultural attributes of countries.

There seems to be a slow decline in the nuclear energy trend in the West. This coincides with factors such as the plateau in energy demand, economic slowdown, availability of alternate sources of energy and greater expression of public concern on nuclear safety. However, a more upbeat trend is noticed in the Eastern European countries. The lull in Western Europe is made up by the increasing interest in nuclear energy in the Asian, African, West Asian and Latin American countries. Asia, especially, is witnessing a positive trend in civil nuclear energy. This is linked to other trends in the fields of geopolitics and international relations, with a significant shift of the centre of gravity from the West to the East. The Asian continent has emerged as the new pivot, with many countries in the region striving for major economic development. Being the most populous continent, many countries in Asia

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are witnessing economic growth that has naturally increased the demand for electricity. The imperatives of economic development in Asia necessitate a diversification of energy sources, keeping in mind the long-term demands. It is here that nuclear power gains prominence.

Nuclear power is becoming an important component in the national electricity basket to power the socio-economic growth of these countries. Furthermore, its low carbon footprint adds to its appeal as a clean and environmentally sustainable source of energy. This makes nuclear power a worthwhile solution to not just meet Asia's energy needs, but also to do so without adding to the problem of climate change. It is also interesting to see how these countries are not limiting their nuclear capabilities to just generating electricity for themselves, but are also looking at exporting their nuclear technology. The nuclear export market which was largely dominated by the US, France and Russia, is now witnessing diversification with new players such as South Korea and China.

Political will is also an important factor that determines a country's nuclear energy future. As examined earlier, nuclear energy policies in various countries keep varying with the changing leaderships. While most leaders look for public acceptance to win the mandate of the next elections, the term which lasts usually for a couple of years, it requires a strong and stable leadership that plans ahead, considering that it takes a long time to discuss, develop and start nuclear power projects.

Overall, the future of nuclear energy seems affirmative. The IAEA predicts nuclear power production will grow by around 46 per cent by 2040. However, over 90 per cent of this increase is expected to come from China and India.⁷⁹ With about 20 countries already developing their nuclear power projects and nearly 30 countries showing interest in going nuclear, it seems to be balancing the number of reactors that are expected to be retired and phased out soon. In this regard, Asia is expected to be the new leader in the growth in nuclear energy.

79. Melissa Goh, "China and India will Lead the World's Nuclear Power Growth, Experts say", CNBC, November 7, 2018, <https://www.cnbc.com/2018/11/08/china-india-will-lead-global-nuclear-power-production-growth-experts.html>. Accessed on June 15, 2019.

DEVELOPMENT AS A FORM OF DIPLOMACY: TRACING ITS ROOTS AND RELEVANCE

URMI TAT

INTRODUCTION

Bilateral relations in world politics often display a mix of stability and dynamism. The underlying principles of these relationships are the vested interests of individual states. Thus, catchphrases like 'Look East' or 'Neighbourhood First' are not linear concepts. They are, in fact, layered and complex. Several ideas and interests, whether economic, political, cultural or historical, have shaped the experiences of nations. Changing political and strategic relations are a reflection of such changes.

International politics is an arena which thrives on the interdependence of various actors. The positions of nation-states are relative, and a command over international or regional politics is a matter of augmenting not one, but several capacities. Thus, it is difficult for a country, facing the complexities of today's times, to develop independent of other actors on the global stage. Rather, every country's relations are built on multiple levels of complex interdependence.

The growing needs of the population shape what a country wants out of its relations with other countries. Domestic needs of energy, capital, labour and

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food security have become major bargaining points in international politics. An essential dimension of cooperation, thus, becomes the economic factor.

External assistance can be a vital tool for developing countries to accelerate investment and growth, resource mobilisation and structural transformations. The unavailability of robust domestic and capital markets makes foreign assistance vital in the promotion of relations. Further, domestic private capital

with its limited outreach is often not interested in financing unviable but crucial infrastructure gaps like roads, rural water supply or health. The grant element and concessional assistance that foreign assistance provides may, thus, be crucial in augmenting resources.

In this regard, development cooperation has become a tool in the strategic relations of countries. Development assistance has the potential to be a consistent line of communication in times when international and defence cooperation can turn fragile. It involves an engagement with local factors, an understanding of local cultures and people-to-people contacts, which are not easily set aside due to political animosity. The proximity that such cooperation brings often operates as a building block of strategic relations. This particularly holds true for a region like South Asia, which is afflicted with several development paradoxes. Here, the capacity to provide economic and social assistance can become a crucial factor in bilateral and multilateral relations.

The paper seeks to understand why development assistance or development cooperation¹ could become the currency of strategic thinking in foreign policy. Though some actors such as the European Union (EU)

1. The distinction between the two is minor. Development assistance involves an activity described from the actor's point of view. It involves the giving of assistance. Development cooperation, on the other hand, involves the interaction between two actors i.e., giving and receiving.

and the United States (US) have hinged their foreign policies around the provision of humanitarian and development assistance, development cooperation today exists as an ad hoc measure that is seldom theorised and examined as a mode of interaction across the world. It is often spoken of on the sidelines of global security summits, even though this constitutes the *modus operandi* of cooperation which could have a direct effect on people's lives. One reason for this is that it involves several dimensions which are difficult to amalgamate and examine. It involves everything from loans and grants provided by governments, to business partnerships by third parties.

Development assistance as a concept is examined in detail here, and so is its potential to further strategic relations. The debate around development assistance is contextualised to the South Asian environment, and historical experiments with development assistance are examined to see if they hold any relevance for the South Asian context. The purpose of this study is to develop an understanding of how India, in many instances a recipient of development assistance itself, can take its own extension of development cooperation forward to others, in a region where, and at a time when, China is engaging in aggressive powerplay with its own surplus wealth.

Should India develop its own model of development cooperation? Are there experiments from its past that can be analysed to take the idea forward? Can India's model be a meeting ground of Western and Eastern methods of development cooperation? Such questions are explored further.

What is particularly unique about the South Asian context is the degree of similarity countries have when it comes to some of the pressing

What is particularly unique about the South Asian context is the degree of similarity countries have when it comes to some of the pressing developmental issues in the region. While this allows for a certain degree of generalisation in policies, the uniqueness of each case is no less evident.

developmental issues in the region. While this allows for a certain degree of generalisation in policies, the uniqueness of each case is no less evident. This paper seeks to identify the pieces of India's past efforts at extending development cooperation. It serves as an overview and explores three dimensions to introduce the importance and scope of development cooperation in strategic relations: the first section explores the differing ideas and concepts of development assistance/foreign aid/development cooperation; the second section goes into the historical evolution of the idea, while the third highlights the status of how India has chosen to align development cooperation and foreign policy.

CONCEPTUALISING DEVELOPMENT DIPLOMACY: DEBATES AND DISCUSSIONS

Diplomacy in international relations can be defined as an institution at the level of international society, which consists of a collection of norms and conventions that govern relations among those involved². Development, on the other hand, has a less satisfactory definition due to the complexities inherent in it. Definitions of development may vary according to the context, the time period or even the ideology of the actors concerned. Similarly, the idea of development has been carried to different ends by different actors in the international scenario.

Development has often been defined ideologically according to the trope of the times. For instance, the initial years after World War II saw a linear definition of development, which was essentially that of the West. Understanding where a country stood on the development paradigm was a matter of cross-checking a few generalised parameters. Acting on the wisdom of the times, Rostow defined five stages of development on a linear trajectory, riding on the back of the experiences of the Western states. This was what led the Western countries to believe that development in Third

2. Christer Johnson and Martin Hall, *Essence of Diplomacy* (Gordonville: Palgrave MacMillan, 2005), p. 21.

World countries would not take place on its own and needed a push³. Gradually different theories and definitions emerged. However, all of them were essentially concerned with the relationship between economic growth and the principles behind the allocation of assets and income.

The idea of development has conceptually widened since the 1990s with the advent of the United Nations Development Programme's (UNDP's) Human Development Index, which embraced the enlargement of human choice as the idea behind development. This was a shift from the erstwhile linear trajectory, as the emphasis on choice reflected the need to respect domestic and local parameters as the means for development. This, incidentally, put more responsibility on the state to enhance its capacity to create conditions which would lead to the realisation and actualisation of choices. Enhancement of state capacity meant improving public administration, strengthening state-society linkages and consolidation of democratic institutions, to name a few measures. Good governance practices or sustainable governance practices came to define the means to progress and development, at the turn of the century.

Development diplomacy, thus, implies leveraging the idea of development, with all its caveats, as a tool to build relations and diplomatic channels with other nations. This is not in contrast, but supplementary, to traditional diplomacy which particularly emphasises cooperation on security and military matters.

In simple terms, development diplomacy involves the financial or in-kind assistance given by governments or other agencies to support social, political, environmental or economic programmes initiated by other governments, which further progress and enlarge human choice and freedom. It refers to a set of behaviour directed towards uplifting the standard of living in regions outside one's territorial boundaries. It is both a method and an objective of diplomacy, and complements state-centric diplomacy.

However, development diplomacy has seldom been looked at as an overarching concept and is seen more in cases which are isolated to individual

3. Jagdish Bhagwati and Richard Eckhaus, eds., *Development and Planning: Essays in Honour of Paul Rosenstein-Rodan* (United States: Routledge, 2015), p. 15.

countries and their conduct. For instance, the term ‘charm offensive’ or ‘public diplomacy’ has been used to describe China’s overtures to expand its global status and image⁴. Similarly, the term ‘citizen diplomacy’ has also been employed to explain the role that non-state actors play in mitigating political problems that the leadership cannot solve.⁵ However, these terms have not been expanded as a lens to analyse the behaviour sets of nations that indulge in development diplomacy. Thus, there exists a gap in the available literature in terms of understanding comprehensively, and comparing, the motives, objectives and outcomes of various actors that engage with development as a form of diplomacy.

Here, a qualitative distinction needs to be made in terms of the difference between ‘foreign aid’ and ‘development assistance/cooperation’. The former implies a one-way monetary transfer of resources, whereas the latter two terms comprise an assorted basket of measures. It is further different from humanitarian aid, with which it is most often misconstrued, as the latter is short-term and mitigative, rather than long-term and development-centric. Development assistance involves cooperation on systemic factors like poverty or structural issues like lack of skill development or economic infrastructure, which may hinder social and economic progress. In the 21st century, development cooperation has been conceptualised in terms of a partnership which is mutually beneficial, at least in theory. Hence, development cooperation is used to refer to the assistance provided and received by two or more actors on the international stage. Over time, development cooperation has materialised as a mixture of charitable, economic and political considerations, the qualitative value of each changing with the pressing need of the times.

Development cooperation can be further refined in terms of the actors involved, wherein aid could be bilateral or multilateral. It could involve

4. Joshua Kurlantzick, *Charm Offensive: How China’s Soft Power is Transforming the World* (New York: Yale University Press, 2007), p. 55.

5. Andreas Fulda, *The Emergence of Citizen Diplomacy in European Union-China Relations: Principles, Pillars, Pioneers, Paradoxes, Diplomacy and Statecraft*, (United States: Taylor and Francis, 2019), pp. 120-123.

sovereign governments or multilateral aid agencies. However, most of the aid circulating in the international system is bilateral.⁶ As opposed to the offensive part of bilateral assistance, development assistance can be viewed as the preventive part.⁷ Assistance can further be official, as well as non-official, the latter being provided by private persons or Non-Governmental Organisations (NGOs). The former is generally referred to as Official Development Assistance (ODA). The focus of research in this study will confine itself to relations between sovereign actors and assistance which are bilateral and official, as this gives a more accurate account of a country's priorities and foreign policy objectives.

ODA must be additionally qualified by a few factors: it must be the government or a governmental agency which undertakes the operation. Further, the idea is to provide assistance on concessional terms, rather than at prevailing and competitive market rates. The Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD) grouping, defines ODA as having a grant element of 25 per cent, which implies that a significant portion need not be paid back.

Several questions can be thrown up regarding the concept of ODA itself: why should a state provide a share of its own scarce resources to other countries? Why should a government that has been primarily given the mandate of taking care of its own citizens, prioritise the welfare of others? The opportunity cost must be particularly low and the rewards significant, to take up what seems, at first, like a counter intuitive way to conduct relations.

The defence for leveraging development cooperation is provided by many schools of thought. Realist scholars believe that aid is, in fact, a tool of hard-

6. Aid comprises 70 per cent bilateral aid and 30 per cent multilateral aid. *Managing Aid: Practices of DAC Member Countries* (OECD Publishing, 2005), p. 11.

7. In Kenneth Waltz's structural realism, offensive and defensive realism denote two approaches to formulating relations between countries. While offensive strategies seek out power and influence to achieve security through domination and hegemony, defensive strategies desist from aggressive expansion and look to reserved and moderate policies to attain security.

Liberal institutionalists and constructivists are on the two sides of the fence. The former believe in the power of aid diplomacy to extend cooperation and goodwill. The latter believe in ethical considerations and norms that have given rise to the need for development assistance.

headed diplomacy.⁸ Thus, for them, aid is an instrument or tool for the donor nation to build security. Marxist scholars believe that assistance is yet again a means of exploitation on the part of donor countries, to secure for themselves raw materials from underdeveloped countries. The international norm that richer countries should help in providing more humane conditions in underdeveloped countries came to be accepted in the 21st century. The turn of sustainable development and common but differentiated responsibility emerged in environment related debates but soon spilled over into social and everyday existence due to the interconnectedness of the new world.

However, these theories do not consider the complexities of modern-day trade. The exploitative developing country-developed country relationship in assistance giving is not the only one which exists. In fact, cooperation between South-South countries has become an equally viable means of development assistance.

Liberal institutionalists and constructivists are on the two sides of the fence. The former believe in the power of aid diplomacy to extend cooperation and goodwill. The latter believe in ethical considerations and norms that have given rise to the need for development assistance. Constructivists believe that ethical and humane concerns, as well as the prospect of the establishment of a peaceful international order were the grounds on which development assistance was meted out.⁹ The notion that domestic politics could play a crucial role in shaping the motives of assistance giving countries is a constructivist one and is a late

8. George Liska, *Nations in Alliance: The Limits of Interdependence* (Maryland: Johns Hopkins University Press, 1968), pp. 116-120.

9. David Lumsdaine, *Moral Vision in International Politics: The Foreign Aid Regime, 1949-1989* (New Jersey: Princeton University Press, 1993), p. 151.

development. Constructivists believe that the political institutions in which decisions are made and the nature of the actors involved are crucial in determining the components, the longevity and purpose of aid.

The very concept of development assistance has various exclusions and inclusions across international organisations and countries. The Development Assistance Committee of the OECD, for instance, considers as development assistance only the transfers meant for low income countries¹⁰. However, many developing and middle-income countries have also taken up the baton of providing development assistance, besides the already established players in the field.

There exists a North-South divide in categorising assistance providers as well. Those outside the DAC are called ‘emerging’ aid givers by the West, which the Southern countries resist.¹¹ This is because the South’s sense of development assistance is different from that of the West. Their cooperation is across multiple sectors and cannot be qualified in strict terms as ‘aid’. They seek to term their involvement as development cooperation or South-South cooperation. This relationship is one based on solidarity and mutual benefit rather than a topical treatment of communities. India too falls in this bracket as it aims more towards local capacity building. These countries deliver low cost aid, with fewer conditionalities than the traditional aid givers. They are also seen as being demand driven¹² in the sense that the aid given is aligned with the needs of the recipient governments.

A common emphasis among Asian donors like Japan, China and South Korea is on loan aid for building economic infrastructure. Aid has been seen conceptually as a part of the wider picture of mutually beneficial assistance.

10. OECD, “Official Development Assistance”, <https://www.oecd.org/dac/financing-sustainable-development/development-finance-standards/official-development-assistance.htm>. Accessed on September 21, 2019.

11. Kimberley Smith and Felix Zimmerman, *Beyond DAC: the Welcome Role of Other Providers of Development Cooperation* (OECD Development Cooperation Directorate, 2010), p. 35.

12. Supriya Roychowdhury, “India’s External Aid—Lessons and Opportunities”, *Economic and Political Weekly*, vol. 48, no. 36, 2013, p. 5.

Within the South-South model, there has been a considerable debate regarding the existence of an Asian model. This model of ODA is rooted in the experience of development donors in the region. Their basket of services, and the treatment of the concept itself, differs from that of their Western counterparts. A common emphasis among Asian donors like Japan, China and South Korea is on loan aid for building economic infrastructure. Aid has been seen conceptually as a part of the wider picture of mutually beneficial assistance.¹³ China is, thus, cautious about the language it uses to denote its development partnerships. It doesn't talk of a 'donor-recipient' equation but, instead, emphasises on mutual benefit and win-win situations.

A few characteristics are common to the Asian model: the emphasis on development through industrialisation;¹⁴ and, belief in the role of a strong state and a considerably smaller component of conditionality, as opposed to the DAC countries. They also spend more aid on building economic infrastructure than the DAC countries.

The sectors for investment differ according to the donor's capabilities and competitive advantage in the international economic system. ODA eligible sectors for the DAC countries include debt forgiveness/waivers, technical cooperation, measures for encouraging peace-building such as election monitoring, assistance to refugees, disaster relief, civil use of nuclear energy, assistance to the civil police service, among others. Few countries or organisations have such explicit and transparent categorisations as the DAC countries. Many countries, just like China, prefer to keep their sectors of investment as well as official figures, away from the public domain. Further, the categorisations are subject to change. The DAC countries themselves have included and excluded peace-keeping operations as a part of development assistance in the past.

13. Alf Morten Jerve, et al., *Aid Relationships in Asia* (United Kingdom: Palgrave Macmillan, 2008), p. 215.

14. Aid is not seen as separate from private investment and other economic activities. It is seen holistically. Most loans, thus, extend to assisting domestic companies in achieving efficiency in production and delivery.

The end goals of using development diplomacy as a tool have been varied. They include, among other things, humanitarian relief, commerce, gaining cultural prowess, and since the advent of 9/11, the promotion of democracy, aiding social or economic transitions, as well as conflict mitigation. However, as we will explore further in the section on the historical development of foreign aid, the goals have always been set according to the domestic considerations of donor nations. Thus, certain factors may weigh in more for some nations than for others. For instance, diplomatic and developmental purposes are high on the agenda of the US, whereas commercial interests predominate the Japanese concerns.

Apart from having the potential to improve the economic and social conditions in countries, the pursuit of development diplomacy can also have strategic advantages.

THE SECURITY-ECONOMY NEXUS

Understanding the link between development cooperation and foreign policy objectives is the key to analysing how the developing and developed countries can extend their hegemonic footprints. Theoretically, it has occupied an important space in the realist school of thought. Morgenthau himself believed that in the modern age, foreign aid is among the real innovations that have been introduced into foreign policy.

The political-security nexus was first brought out by President Truman when he pointed out that poverty is a handicap to the less prosperous countries, as well as their well-off counterparts. The development paradigm is often cited as an arm of the neo-liberal framework. The type of state that is advocated here is the 'governance state' which marks a shift in ideology from the minimal state advocated by libertarians, to the 'effective state' which is effective for businesses and international companies. An example of the neo-liberal state in practice can be seen in the OECD aggregated data on development cooperation. It shows that

there is a declining share of aid assistance to the neediest countries.¹⁵ Instead, aid flows are towards countries which often have viable infrastructure in place to utilise the aid or share a strategic partnership and understanding with the donor country.

It can also be seen from the lens of biopolitics, which is a part of the neo-liberal framework. It concerns the governance of life and populations, rather than states and territories and it aims to govern and promote certain forms of life and develop knowledge, in this case, according to the neo-liberal paradigm. Thus, this development paradigm classifies certain forms of life which are culturally distinct, as unfamiliar and incomplete, and in need of external tutelage.

A nation's development policies or economic assistance in today's context, serves more than goodwill. It is, in fact, an instrument to further geo-political ambitions. This puts into question the conventional categorisation of development diplomacy within the soft power paradigm. To take an example, China has, in fact, been conscious of its political reputation in the region. Evading the 'China Threat' became its focus by leveraging its economic prowess while simultaneously keeping alive the String of Pearls ambition which has overlapping political and military objectives. China works on using development diplomacy to cement hegemonic ambitions. The model of conduct is the new mode of interaction and influence in the region. It leads us to question our understanding of geo-politics and global development as separate and isolated entities. The arena of global development is proceeding to be the dominating arena where global geo-politics plays out.

Development cooperation can also serve as a form of 'cheque book diplomacy'. The term implies granting economic assistance in exchange for political dividend. Russia's \$50 million in development aid to Nauru, for instance, was primarily in exchange for recognition of Abkhazia, Southern Ossetia, which is otherwise considered by the international community to be a part of Georgia.

15. Catherine Bremer, "Development Aid drops to the neediest countries," OECD News Bulletin, 2018 at <https://www.oecd.org/newsroom/development-aid-drops-in-2018-especially-to-neediest-countries.htm>.

Assistance can allow for the expansion of activity by governments, or for enhancing the capacity of the recipient government to combat several domestic challenges. An example of this is the development assistance provided to African nations that has often been successful¹⁶ in lowering the prevalence of diseases, spurring entrepreneurship and boosting agriculture, thus, allowing for the availability of healthier human capital.

Assistance is also symbolic in many ways: falling assistance levels can be a cooling off factor in a relationship, whereas renewed assistance is a means of indicating closer partnerships. It can also promote cooperation and goodwill. The constructivist school of thought believes that ethical and humane concern, as well as the desire to establish a peaceful international order were the pretexts on which development assistance was meted out. The United States, for instance, has incurred budget cuts in its total development assistance expenditure this year. However, a look at the qualitative component of the budget cuts tells us that aid for refugee-based programmes has been cut.¹⁷ This goes back to its larger policy focus of America First and its declining attention to refugee crises around the world.

Foreign assistance is also used to garner diplomatic repute, and support for diplomatic stances in international organisations. This could augur well for India's campaign to be seen as an economic powerhouse for a permanent seat in the United Nations Security Council (UNSC). Grassroots-based programmes like India's community building programmes in Afghanistan have implications for de-radicalisation and extremism as well.

Development assistance can also be seen as creating dependency and encouraging currency overvaluation due to the false notion of a bullish economy. The neo-colonial function of creating dependency through aid can also be seen in the case of Greece where the aid package for bailing out

16. Angelle B. Kwemo, "Making Africa Great Again: Reducing Aid Dependency", 2017, <https://www.brookings.edu/blog/africa-in-focus/2017/04/20/making-africa-great-again-reducing-aid-dependency/>.

17. Robie Gramer, Colum Lynch "Trump's Plan to Slash Foreign Aid Puts Humanitarian Programs in Jeopardy." August 16, 2019, <https://foreignpolicy.com/2019/08/16/donald-trump-plan-to-slash-foreign-aid-puts-humanitarian-programs-in-jeopardy/>.

The factor that has remained constant in the trajectory of development aid despite the change in volume, composition and financial terms, is the exploitation of development objectives for commercial and political advantage.

its economy largely benefitted big businesses¹⁸ and helped keep the economy afloat, instead of being invested in making structural changes in the economy and in productive assets.

However, ODA requires constant adaptation to the situation and is far from perfect in its conceptualisation. It has evolved, and continues to evolve, by taking into account new sources of finance, as well as new objectives.

Examining the history of aid and assistance giving provides an answer to why objectives have been mixed among donor countries. It is to be noted however, that development

diplomacy remains a modern phenomenon. Even though ad hoc transfers took place in the past, in the form of colonial policies, subsidies and tributes which were linked to forwarding strategic and diplomatic goals, they were not in the form of institutionalised public concessional transfers to promote development. The latter remains a 20th century innovation.¹⁹

HISTORICAL CONTEXT: DEVELOPMENT DIPLOMACY IN PRACTICE

Historically speaking, development diplomacy has grown out of the mould of being narrowly conceived as foreign aid. However, it has always been linked with security and never existed independently as a goodwill initiative.

Prior to World War II, the concept of gifting of public resources by one government to another was unheard of. It began as a temporary and ad hoc measure of Cold War diplomacy and was later institutionalised in the late 20th century. The factor that has remained constant in the trajectory of development aid despite the change in volume, composition and financial

18. Larry Elliot, "Greece's Bailout is Finally at an End – but Has Been a Failure," <https://www.theguardian.com/world/2018/aug/19/greeces-bailout-is-finally-at-an-end-but-has-been-a-failure>.

19. *Ibid.*, p. 312.

terms, is the exploitation of development objectives for commercial and political advantage.

Assistance has varied across the decades in terms of the basket of goods on offer, as well as the philosophy and political strategy behind its conceptualisation. This section will analyse the history of development assistance on the parameters of economic philosophy and political strategy, marking noticeable changes across the decades.

The essential shifts across the decades were as follows: community development support was the crux of the support system in the 1950s, while in the 1960s, aid was provided to fill trade and investment gaps. The 1970s saw the transition to implementing aid for basic human needs, while the 1980s fleshed out structural adjustment and debt relief. Further, the 1990s built on this trajectory and emphasised on human development and democratic governance.

The reasons for these shifts embodied the complexities of the changing times. The developments in economic thinking were always shaped by the happenings in world politics and vice versa. The world was becoming more and more interdependent and involved, as witnessed in the decolonisation movement, the Cold War, the wars in Vietnam, Middle East and South Africa. Here, the interests of the North-South and East-West coincided.

The 1800s and Early 1900s: A Start to Development Thinking

The practice of assistance in the 1800s cannot be termed development assistance but it did mark a start to the act of providing relief. Sporadic

The post World War II period saw the mushrooming of several institutions which would be the future of aid giving processes in the times to come. The UN, UN Relief and Rehabilitation Administration, Bretton Woods Conference, Oxfam and United Nations International Children's Education Fund (UNICEF) were established in quick succession. This period saw a focus on reconstruction efforts and the rise of programme aid.

acts took place at this time but these did not result in the culmination of a culture or ethos. The US and UK were the pioneers in this regard. In 1812, the Act for Relief of the Citizens of Venezuela was passed by the US Congress and it was in the 1870s that discussions regarding transfers of official assistance to the British colonies were initiated. By 1896, the act of transferring food surplus from the US had begun, with the intention of developing new markets abroad. The UK's Colonial Development Act similarly mirrored the need to use the colonies for its own development cause. The Act authorised loans and grants for building infrastructure which would allow the supply of inputs for British manufacturing industries. Aid financing drew heavily from the experience of France and Britain in their colonies.

The 1920s: Linking Economics and Public Policy

The UK Colonial Development Act of the late 1920s and the Agricultural Adjustment Act of the US in the 1930s, saw the beginning of institutionalisation and regularisation of aid shipments.

Post the Great Depression and the difficulties that war induced destruction brought, the reform of the economic system was inevitable. International peace was synonymous with economic stability and growth. However, the unilateral transfers continued, with the motive of developing markets and spheres of economic influence.

The 1940s: World War II and the Rise of Planned Assistance

The post World War II period saw the mushrooming of several institutions which would be the future of aid giving processes in the times to come. The UN, UN Relief and Rehabilitation Administration, Bretton Woods Conference, Oxfam and United Nations International Children's Education Fund (UNICEF) were established in quick succession. This period saw a focus on reconstruction efforts and the rise of programme aid.

The priority at this point of time was for financing the reconstruction of the war-ravaged countries and, thus, this formed the crux of the Marshall Plan

and the World Bank's assistance programmes.²⁰ Under the Marshall Plan, 25 percent of the assistance was to be in the form of food and fertilisers. As aid under the plan waned, its spirit was re-enacted by the powerful farming lobby in the form of PL480.²¹

Debates on the economics of aid raged during this time, with T. Bauer and Milton Friedman voicing their opinion against it. They believed that aid would only substitute the national resources, without causing any structural or policy changes that would enable its proactive utilisation. Aid could, thus, be used for consumptive expenditure, rather than for capital investments. There was a need to have good governance policies in place before aid could be given.²²

It was also feared that aid would retard the development of an indigenous entrepreneurial middle class and delay institutional reforms by creating dependency on external structures and finances. This would, in fact, slow down growth in the long term, contrary to the neo-liberal goals of accelerating it.²³

The 1950s and 1960s: The Cold War and the Ideological Nexus

The Cold War period saw the rivalry between the US and the Soviet Union gaining momentum. The US policy of containment guided its initiation of the Marshall Plan. Aid, at this point, included food aid and individual projects. A unique initiative by the US at this time was the Community Development Movement which went side by side with its otherwise top-down approach to development assistance. This was, in fact, a programme to strengthen social cohesion at the village level and develop community directed progress. It reflected sensitivity towards the rise of independent nations and further facilitated the case for a broader development effort later in the 1960s.

20. Jan Pronk et al., *Catalysing Development—A Debate on Aid* (Oxford: Blackwell Publishing, 2004), p. 73.

21. This was instituted by the 1954 Act. The US' Food for Peace programme was instrumental in providing food aid for over 50 years, and was, incidentally, one of the most important tools of diplomacy for the US at a time of global food shortages.

22. Milton Friedman, "Foreign Economic Aid: Means and Objectives" (*The Yale Review*, 1958), pp. 500-516.

23. Pronk, et al., n. 20, p. 151.

The 1950s were inspired by the Harrod Domar growth model and the Arthur Lewis unlimited supply of labour model which resulted in assistance being directed towards large-scale capital-intensive projects, with scant regard for labour, human capital and productivity. The Harrod-Domar growth model emphasised on the gap and trap approach to foreign aid. This implied that aid could be utilised to fill finance gaps and escape from economic traps in a system. Although the logic of the approach has been disputed, it served as the underlying economic logic for aid.²⁴

The Colombo Plan established by the South Asian and Southeast Asian nations in 1951 was a unique initiative by the newly independent and developing countries of the time. The primary aim was developmental assistance and it was recognised as a novel South-South effort.

The 1960s also saw the start of many bilateral programmes and sector specific approaches, for instance, towards agriculture, popularly known as the green revolution. Technical assistance and budget support became popular means of assistance, thus, indicating willingness on the part of the donor countries to be attentive towards the finer details of the newly independent countries.

These efforts were cemented by the formation of the DAC of the OECD in 1960. Its mandate was to monitor the performance of aid and aid related targets of its members. It also defines the components of ODA and updates the list of recipients periodically. The need for an institution like the DAC was felt due to the disorganised manner in which foreign aid was being meted out. Thus, it was natural for its mandate to not only include setting standards on terms and conditions of aid and monitoring flows in development finance, but also the promotion of good practices in the global development architecture.

24. William Easterly in *White Man's Burden* states that there is no clear link between aid and economic growth and no theoretical model has been able to establish such a link. William Easterly, *Tyranny of Experts: Economists, Dictators, and the Forgotten Rights of the Poor* (New York: Basic Books, 2013), p. 51.

The 1970s and 1980s: Multilateral Institutions and Multipronged Approaches

This period saw the prevalence of multilateral assistance from the World Bank and International Monetary Fund (IMF). This meant the promotion of the gradual roll-back of the state. In fact, the 1980s saw an increased reliance on NGOs as a conduit for furthering assistance. The growing importance of the market also implied the simultaneous rise of financial programmes, debt relief and import substitution, as opposed to food aid. Development assistance became a mix of commercial, altruistic and norm-based behaviour. Agencies like the IMF had made aid conditional on free market reforms in order to drive home the prevailing ideology.

Robert Solow's neo-classical model of growth and the basic needs approach in welfare economics inspired a dedicated flow of funds towards social programmes like health and education, poverty eradication, upskilling and development of human capital. His idea of sustained economic growth involved investing in human capital and technological advancement, rather than accumulation of capital as focus on the latter would eventually lead to diminishing returns.

The Japanese aid giving strategy came of age during this period and also assumed a unique position because of its domestic stimuli. The oil crisis of the 1970s made the world jittery about securing oil supplies. Japan particularly, recognised its vulnerability as a resource poor nation and understood the importance of securing the cooperation of the developing countries.²⁵ However, to conduct trade and carry on a relationship of mutual assistance required infrastructure. Thus, its heavy emphasis on developing infrastructure is rooted in its own experience. The other push was the ardent need to feel respected in the international community, since it was limited in terms of its military capabilities by its own Constitution. By the end of the 1980s, Japan had become the biggest

25. D.T Yasutomo, *The Manner of Giving: Strategic Aid and Japanese Foreign Policy* (New York: St. Martin's Press, 1986), p. 12.

donor in terms of ODA in absolute terms. It embodied the principles of burden sharing or *yakuwari bhuntan*.²⁶

During the Cold War period, the US took the lead in aligning its security policy with its development aid programmes. The major purpose of US foreign policy at this juncture, was the containment of the Soviet Union's Communist policy. Here too, context played an important role. The East European countries were less developed and were in dire need of economic assistance. The purpose of economic aid, or the Marshall Plan, was to create stable political systems since motivations for assistance were driven by the notion that 'underdevelopment' constituted the conditions that were conducive to the spread of Communism. In the 1960s, US involvement in Vietnam was also on the back of an economic and military assistance programme in the initial years.²⁷

The 1980s and 1990s saw the mushrooming and strengthening of an international economic order that was centred around the Washington Consensus²⁸. Poverty alleviation continued as an important international concern. However, the path to alleviation was linear and driven by monolithic ideas. Economic growth and an outward looking development strategy which emphasised on open trade and greater investment flows, dominated the poverty alleviation discourse. The underlying philosophy was this: accumulation of capital was co-related with increased savings and investment, which would further translate into higher growth, which would,

26. The Ministry of Foreign Affairs of Japan emphasises on the need for 'internationalisation of the country'. Its official document on the synergy between the international community and Japan, emphasises on the need to be magnanimous towards different countries and cultures, in order to tackle pressing international problems like poverty, discrimination, etc. Thus, burden-sharing becomes an important facet of Japan's foreign policy.

Ministry of Foreign Affairs, Government of Japan, "The International Community and Japan", <https://www.mofa.go.jp/policy/other/bluebook/1991/1991-3-4.htm>

27. Louis Picard, ed., *Foreign Aid and Foreign Policy: Lessons for the Next Half Century* (London: M.E Sharpe, 2008), pp. 130-146.

28. The Washington Consensus was an agreement among key Washington-based institutions such as the IMF, World Bank, US Department of Treasury, on policy measures to assist crisis-stricken countries. This included liberal measures such as opening up of trade and investment, expansion of market forces and other measures which focussed on macro-economic stabilisation.

in turn, trickle down to the masses.²⁹ And the key to all of this was the input of ODA, which would help finance this cycle.

Prevailing schools of thought during this time encouraged the above-mentioned dynamic. The works of Anne Krueger and Jagdish Bhagwati emphasised on the need to open up economies and expand exports in order to achieve higher productivity.

The developing countries, which were the major recipients of donor assistance at the time, had very poorly developed private capital markets. Thus, ODA was considered to close this financing gap and propel growth. The financial assistance was clubbed with structural reform packages which aimed to build a free market system in the recipient countries. Donors generalised the economic allocation strategies and effectively aggregated the diversity of the developing world.

The 1990s: Good Government and Policy-Making

The end of the Cold War period saw the US as the leader of the new unipolar world order. It now encapsulated foreign aid as a part of its peace-making initiatives in the Balkans, Northern Ireland and Africa, among others. Aid was also utilised to promote smooth transitions of governments in the erstwhile Communist countries. Initiation of democratic reforms prevailed as the most appropriate form of government reforms post the transition. The state became important for implementing reforms, while good governance issues took centre-stage.

The phrase 'Programme Ownership' became important to describe the orientation of the assistance programmes. It was considered more efficient to incorporate the recipient government in the design and management of programmes in order to incentivise their enthusiasm and involvement.

Post-1990, the composition of aid diplomacy also changed. Development and humanitarian assistance grew as the post-1990 goals turned to the discourse of sustainable development. With time, the trade vs aid debate took centre-stage. The belief here was that trade, which involved

29. Christian Schabbel, *The Value Chain of Foreign Aid* (Germany: Physica-Verlag, 2007), p. 216.

Relatively poorer countries, in terms of per capita Gross Domestic Product (GDP) like India and China also provide assistance to similarly placed countries. There is also the trope of developing countries providing aid to other developing countries.

economic policies such as open markets and elimination of trade barriers was a more comprehensive and sustainable policy than mere monetary assistance. The US was, in fact, charging more as import duties from the poor countries than it was providing in aid, and approaches such as these needed to be rectified.³⁰ The debate gradually led to the notion that trade, as well as aid, would tantamount to development success stories. Incidentally, this made the environment more friendly for the developing countries to enter the fray.

The nature, scope and motives of development assistance have changed over the years as improvements in standards of living have taken place, throughout the world. Most of the major recipient countries have now become donors, and so have several developing countries.

The reality is that assistance giving is not confined to the developed countries, as was the norm at the inception of development aid. International organisations, whether old or new, such as the World Bank, Asian, African, Inter-American Development Banks have such programmes inked into their mandate. However, the developed countries of North America and Western Europe also find company in this field in the oil producing countries of the Middle East, as well as the middle income countries like Korea, Thailand and Turkey. Eastern European countries which were part of the former Soviet bloc, have also found their footing in the midst. Relatively poorer countries, in terms of per capita Gross Domestic Product (GDP) like India and China also provide assistance to similarly placed countries. There is also the

30. Steven Radelet et al., "Counting Chickens When They Hatch: The Short Term Effect of Aid on Growth," *World Bank Policy Research Working Paper 1550* (Washington: Centre for Global Development).

trope of developing countries providing aid to other developing countries.³¹

The 2000s: Globalisation and Development Politics

Never has the need for development assistance been so pressing as in the globalisation era where access to technology, capital and ideas has created sharp divides between the haves and the have nots. The role of public perception became important during this time due to the widespread penetration of means of communication and the growing need for holding governing bodies accountable for their actions. NGOs and civil society groups also emerged as prominent lobbies in the 21st century, thus, propelling development concerns on the agenda of countries.

Many of the ongoing projects today include reconstruction projects in politically disturbed countries like Iraq and Afghanistan, as well as micro-enterprise loans like that to Bangladesh. Development assistance even includes alliances with scientists and professionals to collaborate on solutions to food and agricultural crises. An example of this is the ongoing collaboration between India and Israel on non-traditional security aspects like agriculture, food and water security.³² Aid to support girls' education,³³

Japan emerged as the largest ODA donor in the 1990s and still thrives as one of the largest contributors to the same. Its successful implementation of ODA has also seen many of its donee countries turn into aid donors, such as China, South Korea and even Thailand.

31. Harsh V. Pant, "Israel's Arms Sales to India: Bedrock of a Strategic Partnership", Observer Research Foundation, <https://www.orfonline.org/research/israels-arms-sales-to-india-bedrock-of-a-strategic-partnership-55101/>. Accessed on September 19, 2019.

32. Meighan Stone and Rachel Vogelstein, "Investing in Girls' STEM Education in Developing Countries", Council on Foreign Relations, <https://www.cfr.org/report/investing-girls-stem-education-developing-countries>. Accessed on August 1, 2019.

33. World Health Organisation, "Aid for Health", <https://www.who.int/hdp/aid/en/>. Accessed on August 15, 2019.

vaccination drives³⁴ and family planning services³⁵ comprise another basket of social welfare activity. Research and collaboration in the fields of medical sciences is complemented by university level exchanges. The new threat to global security also comprises diseases such as Ebola or H1N1, which are trans-border agents and need coordinated policy-making for their control. Development assistance works towards collaborating on such issues for greater precaution and prevention. In a way, the new millennium has seen a diversification of goals, projects and ideas.

2013 Onwards: BRI and Ahead

The Chinese model takes forward their apparent success in providing economic welfare measures for their own citizens and extrapolates it abroad.³⁶ The philosophy behind their chosen form of assistance is to improve the accessibility of remote regions by developing the infrastructure, with the underlying assumption that this would boost economic morale and activity. Hu Jintao's emphasis on China developing and strengthening 'public diplomacy and humanities diplomacy' marked China's adoption of public diplomacy at the global level³⁷ in 2009. The rhetoric was soon followed up with concrete measures like formation of public diplomacy associations in Beijing a few years later.

China assumes that an entrepreneurial spirit would develop amongst the people at large, once they are given the opportunity and exposure via connectivity schemes. The Chinese pitch lies in providing information and infrastructure in a way that is distinct from that of the West, and closer to the South-South principle of cooperation.³⁸ The official Chinese narrative lies in pledging greater development cooperation, without challenging the cultural

34. Ibid.

35. Ibid.

36. James Pamment and Karin Gwinn Wilkins, eds., *Communicating National Image through Development and Diplomacy* (Switzerland: Palgrave Macmillan, 2018), p. 272.

37. 11th Conference of Chinese Diplomatic Envoys Stationed Abroad, Beijing, 2009.

38. Q. Zhao, "Japan's Aid Diplomacy with China" in B.M. Koppel and R.M. Orr, eds., *Japan's Foreign Aid: Power and Policy in a New Era* (Boulder: Westview Press, 1993).

dynamics of the region, or questioning the ruling elite.³⁹ This serves them well at a juncture where Western economic and political reforms have been criticised for raising tensions across the globe due to their inability to view situations from a localised lens. Thus, China has combined the development methods of the West while, at the same time, allowing countries to adapt the models to their own unique contexts.⁴⁰

Similarly, Japan emerged as the largest ODA donor in the 1990s and still thrives as one of the largest contributors to the same. Its successful implementation of ODA has also seen many of its donee countries turn into aid donors, such as China, South Korea and even Thailand.

The September 2001 attacks placed an emphasis on the fight against terrorism. Development diplomacy also succumbed to the Western notion that poverty bred discontent and terrorism. Thus, assistance again received a new orientation. There was now a need to take a three-pronged approach to world politics: maximisation of security and economic development while addressing humanitarian issues. The issues of development, security, conflict prevention and peace became interdependent.

The South Asian context provides an apt setting for analysing the phenomenon. Established players in South Asia such as China, and in East Asia such as Japan, have long dominated the narrative. However, the recent years have seen the emergence of new players.

THE DEVELOPMENT CONUNDRUM: THE SOUTH ASIAN THEATRE

The South Asian region represents a unique medley of contradictions and synergies. It represents a myriad aspirations from its growing middle class but basic services still elude a majority of its population. The prevailing security matrix is one of suspicion and constant vigilance despite having historical and cultural affinities. The constantly changing political posturing of the countries in the region also lends an atmosphere

39. Xinhua News Agency, "Belt and Road Initiative," <http://www.xinhuanet.com/silkroad/english/index.htm>.

40. Sputnik News Agency, "Russian Chinese Officials Discuss Color Revolutions", 2016, <https://sputniknews.com/world/201609131045247958-russiachina>.

of unpredictability. The region is younger demographically in comparison to other international groupings and represents aspirations of breaking out of the shell of its post-colonial identities and ascriptive descriptions. Countries such as India, China and Pakistan seek to place themselves as indispensable players in the global matrix. However, despite the competitive international environment, this region is distinguished by its stark need for capital from domestic and foreign sources, in order to fulfil its ambitions.

This section offers a look at where the individual actors stand in terms of their national goals and how the region as a whole compares to global indicators. Thus, the South Asian region provides abundant scope for leverage for an actor with deep pockets like China. This is the reason why China has been able to spread its footprints in the region by offering competitive loans. The theatre of development politics can play out only if there is a sufficient need for the same. The South Asian region offers a stage, a platform and an invitation to an economic hegemon to cultivate and further develop its strategic agenda.

India's position in this matrix is unorthodox and needs to be explored further. It seeks to be the major player in the region's politics but does not perform better than its South Asian counterparts on many global indicators⁴¹. However, India seeks to branch out in its communications, support and influence in the region and even rival China's claims by the strategic use of its comparative advantage. The following section presents an analysis of the scope of key areas of cooperation and divergence in South Asia and establishes why it is an ideal theatre for development politics.

On Sustainable Development Goals

The Millennium Development Goals (MDGs) and the more recent Sustainable Development Goals (SDGs) are the best matrices for a global comparison of achievements in the development sector. The MDGs

41. In the SDG index (2018), only two countries in South Asia (Bhutan, Sri Lanka) are in the top 100. India finds itself at the 112th position, <https://in.one.un.org/sdg-india-index-2018/>.

comprised a set of 8 objectives that were to be achieved by 2015. The SDGs, on the other hand, are more detailed, universal, integrated and inclusive in nature.⁴² They comprise 17 goals with 169 targets which must be achieved by 2030.

The NDGs did not see strong performance across the region,⁴³ which makes the success of the SDGs important in improving the standard of living of people in the region. There are several paradoxes that come to light when analysing the region: performance on the development indicators does not mostly correspond to the per capita income;⁴⁴ although the South Asian economies perform well in terms of progress on elimination of poverty,⁴⁵ the absolute numbers remain high; Gini coefficients of consumption inequality are low in the South Asian countries,⁴⁶ however, the region remains among the most unequal in the world. This is due to several intersectionalities of social factors like caste, ethnicity and gender.

The SDGs would be difficult to achieve, with each country working in isolation. In fact, several goals are transnational in nature⁴⁷ and require cooperation by design. Country level data show that India is doing well in certain goals: Goal 1 (ending poverty), Goal 6 (sanitation and access to clean water), Goal 12 (sustainable development) and Goal 16 (strong institutions, peace and justice) while underperforming in goals like Goal 2 (zero hunger), Goal 5 (gender equality) and Goal 9 (industry and innovation).⁴⁸ Bangladesh,

42. Syed Munir Khasru, "Why South Asia Must Cooperate," *The Hindu*, June 22, 2019, <https://www.thehindu.com/opinion/op-ed/why-south-asia-must-cooperate/article28103001.ece>.

43. Jayati Ghosh and C.P. Chandrashekhar, "Why is South Asia Performing so Badly on the SDGs?" *The Hindu Business Line*, March 25, 2019, Macroscan, Delhi Edition.

44. India has one of the most diversified economies and is also the largest economy. However, it does not perform better than the landlocked likes of Nepal and Bhutan.

45. Income poverty is defined as living below \$1.90 per day at Purchasing Power Parity (PPP) exchange rates as the indicator. Use of PPP exchange rates, however, can always be criticised.

46. Forbes, "Asia's Wealth Gap is Among the Largest in the World: What Can Leaders Do to Fix it?," <https://www.forbes.com/sites/ljkelly/2018/02/02/asias-wealth-gap-is-among-the-largest-in-the-world-what-can-leaders-do-to-fix-it/#1760c87ea436>. Accessed on August 14, 2019.

47. These include goals related to hunger, gender equality, education and even sustainable cities and technology.

48. Ibid.

on the other hand, also does well in Goals 1, 6 and 12 but fares poorly in Goals 2 and 9.⁴⁹ Pakistan, similarly, lacks improvement in Goals 2,5 and 9, similar to both Bangladesh and India.⁵⁰ Policy harmonisation, thus, could also avoid duplication of efforts in a resource starved region. A coalition of efforts from non-state actors in the region such as the public and private sectors, public-private partnerships and NGOs could help catapult progress in terms of the nationally determined goals.

The figures (Fig 1 and Fig 2) depict the concerning levels of inequality in Asia. Inequality can be seen as a compounded result of inefficiencies in individual goals, such as those in the SDGs highlighted above. India's Gini coefficient rose to 51 by 2013, from 45 in 1990, on account of rising inequality between urban and rural areas as well as within these areas.⁵¹ Similarly, at a time when inequality came down for the rest of the world, a regional comparison shows that the net Gini coefficient rose for Asia to 40 in 2013, up from 36 in 1990.

Trade

South Asia remains one of the least integrated regions in the world. The facts are self-explanatory. Intra-regional trade accounts for only 5 per cent of the total trade conducted in the region, whereas intra-regional investment is less than 1 per cent of the total investment.⁵² The facts allude to the underutilised potential in the region. Clubbed with the fact that the region hosts 30 per cent of the world's poor,⁵³ it is clear that there is a lot of scope for cooperation on common developmental problems.

49. Ibid.

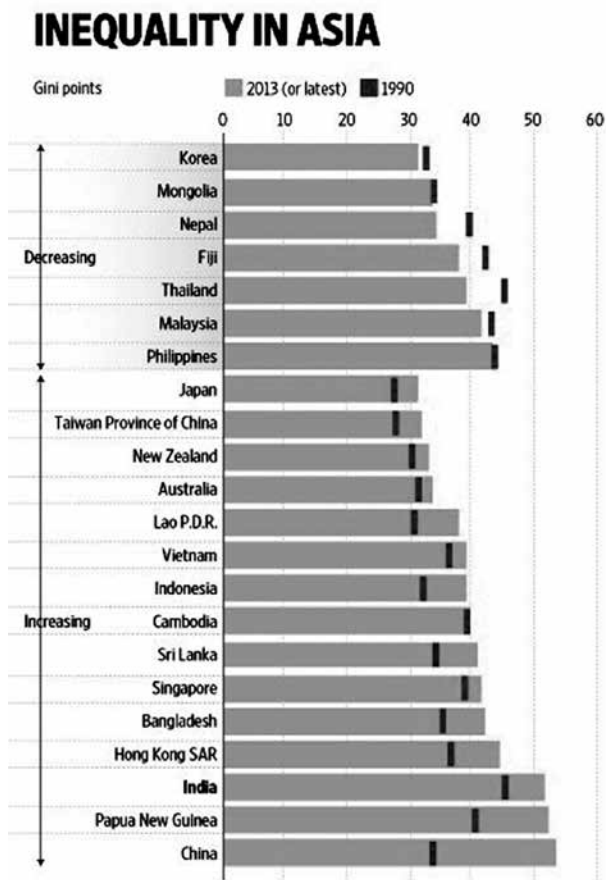
50. Ibid.

51. Remya Nair, "IMF Warns of Growing Inequality in India and China," *LiveMint*, Politics Section, <https://www.livemint.com/Politics/mTf8d5oQzMwavzaGy4yMN/IMF-warns-of-growing-inequality-in-India-and-China.html>.

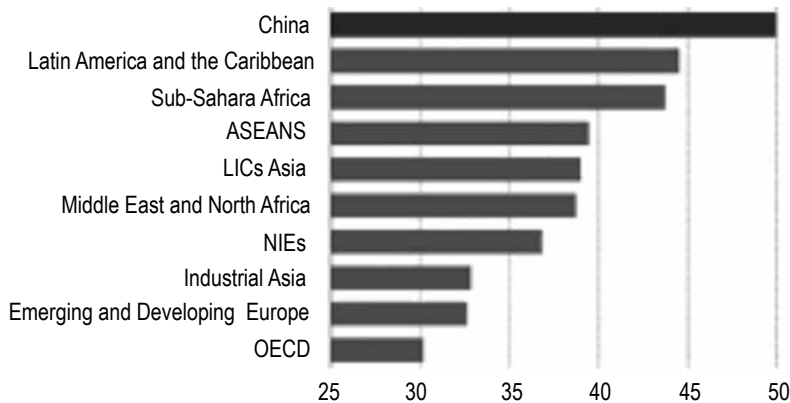
52. This is in comparison to intra-regional trade accounting for 50 per cent of the total trade in East Asia and the Pacific, and 20 per cent for Sub Saharan Africa. Sanjay Kathuria, ed., *A Glass Half Full: The Promise of Regional Trade in South Asia* (Washington D.C: World Bank, 2018), p. 112.

53. "30 percent of Very Poor Children Live in India: Unicef", *Economic Times*, October 5, 2016, Economic Indicators

Fig 1: Inequality in Asia as per Gini of Inequality



Source: IMF data on regional inequality levels.

Fig 2: Regional Comparison Coefficient

Source: IMF data on inequality.

Financing of SDGs would benefit greatly from the intra-regional flow of Foreign Direct Investment (FDI), with the public and private sector pooling in their resources. The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) and Bangladesh, Bhutan, India and Nepal (BBIN) groupings have identified lack of connectivity as among the key problems restricting trade flow. However, as far as redressal of the problem is concerned, the connectivity initiatives operating in the region are stunted by weak governance structures and inadequate political will.⁵⁴ Similarly, the South Asian Free Trade Area (SAFTA) of 2006 has been undermined by a long 'sensitive list' which restricts 35 per cent of intra-regional trade.⁵⁵

Despite progress, the South Asian countries export approximately only one-third of their potential. The export gap has only widened over time as countries have not been able to take advantage of the global trade environment.⁵⁶ They have, in fact, inadvertently restricted themselves to the margins of global value chains. In terms of exports to each other, the figures

54. Constantio Xavier, "Bridging the Bay of Bengal: Toward a Stronger BIMSTEC", Carnegie India, February 22, 2018, South Asia section.

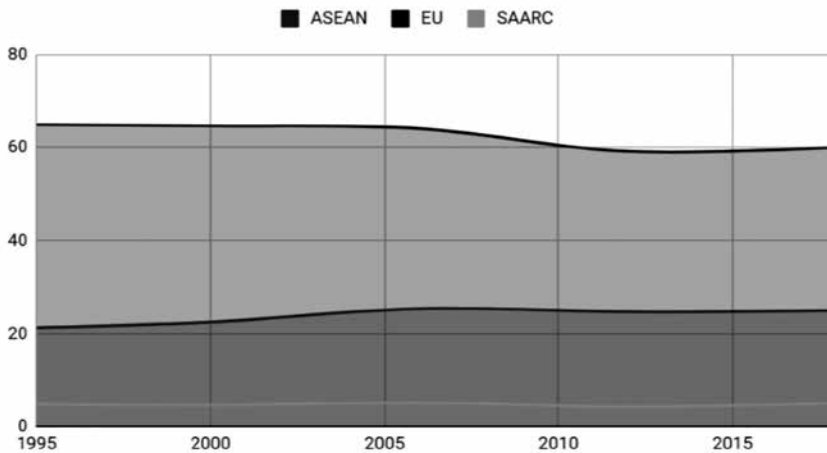
55. Items on the sensitive list are not offered concessional tariffs. India itself restricted up to 52 per cent of its total imports by value from SAFTA members, due to its utilisation of the sensitive list category.

Nisha Taneja et al., "Enhancing Intra-SAARC Trade: Pruning India's Sensitive List under SAFTA," Indian Council for Research on International Economic Relations, April 2011.

56. The export gap stands at 20 per cent of the GDP as of 2017. World Bank, "South Asia Needs More Exports to Maintain Growth", World Bank Press Release, April 7, 2019.

amount to less than 2 per cent of total exports among India, Pakistan, Sri Lanka and Bangladesh.⁵⁷

Fig 3: Intra-Regional Trade as a Percentage of Total Trade



Source: Author's own calculations, based on World Bank data.

An Aspirational Region

The cumulative growth statistics in the region stand at 6.9 per cent in 2018 and are gearing up to accelerate even further in the future.⁵⁸ However, what is common across the region is the qualitative nature of the growth. Growth is mainly consumption led and not investment led. Thus, the region faces vulnerabilities since lack of investment fuels low growth and this, in turn, makes people wary of spending. This model of growth is prone to shocks and is unsustainable in the long run and can be contrasted to China which has grown on the back of an investment led economy, rather than solely being fuelled by domestic

57. The Asia Foundation, "Intra-Regional Trade in South Asia," Asia Foundation Yearly Report, May 7, 2016.

58. The World Bank regional economic update cites these figures and proclaims it the fastest growing region, surpassing East Asia and the Pacific. The World Bank, "Where We Work," <https://www.worldbank.org/en/region/sar/overview>, Accessed on August 3, 2019.

demand. Further, most South Asian countries generate low tax revenue and incur substantial budget deficits.⁵⁹ This is accentuated in the time of election cycles. Its fiscal weakness diminishes its ability to take on external shocks and slowdowns. Being driven by domestic demand also increases pressure on imports, which far outstrip exports.⁶⁰

The fiscal situation points to several developmental challenges. Weak discipline by state governments in federal states and high cost of service delivery in island nations hinder access and equality. There is a strong need to spur entrepreneurship, innovation and also to equip citizens with the skills to compete in the global market. High government spending is understandable in a region like South Asia where the developmental challenges are plentiful. However, the governments also need to think about the sustainability of their initiatives.

In terms of population demographics, South Asia faces the challenge of underutilisation of its resources. Population growth and economic growth are not necessarily co-related unless the capacities of the economies are improved. As Fig 4 shows, the South Asian population will remain relatively young. It is a region with high fertility rates in absolute terms, though they have been on a declining trajectory. The working age population is expected to increase by 2030 and, thus, requires commensurate growth to absorb them. A common point of tension among the South Asian countries is an underdeveloped manufacturing sector.⁶¹ China relied on this sector to absorb the growing workforce during its economic boom years.

59. South Asia's fiscal deficit is the second largest in the world (2018), after the Middle East and North Africa region. It currently stands at 4.4 per cent of the GDP.

The World Bank, "South Asia Firms Up Its Growth Lead, Despite Budget Woes," The World Bank Press Release, October 7, 2018.

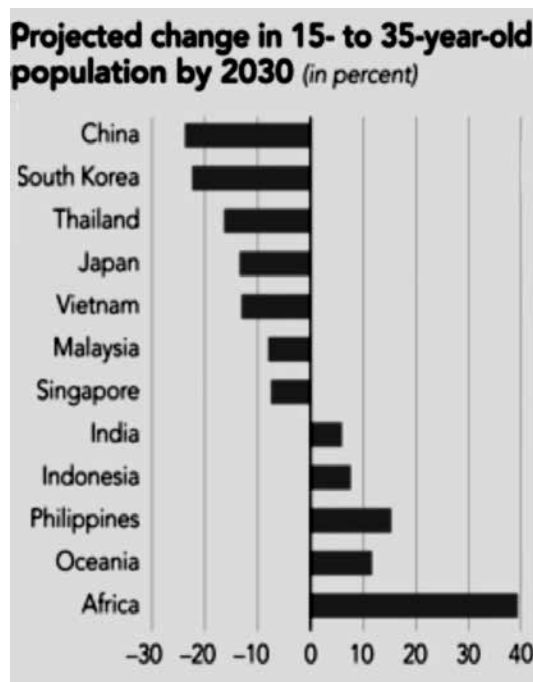
60. Though the region's growth is robust, swelling imports have caused widening trade gaps and current account deficits, often triggering currency depreciation. High import growth of 14.9 per cent in 2017 and 15.6 per cent in 2018, was twice as high as the region's export growth of 4.6 per cent in 2017 and 9.7 per cent in 2018.

International Bank for Reconstruction and Development, "Exports Wanted," *South Asia Economic Focus*, May 6, 2019.

61. The Economist Intelligence Unit, "Can South Asia Make the Most of Favourable Demographics?" *The Economist*, November 21, 2018, South Asia, Country Analysis.

Poor educational standards and obstructive labour laws across the region compound the problem. Problems of skewed land distribution and equity will complicate the situation even further. Added to this is the increased push towards urbanisation which leads to potential problems of sanitation and inequitable growth. South Asia's urban population is expected to rise by 250 million by 2030,⁶² placing additional pressure on the economies to quickly remedy the prevailing situations of disguised unemployment, as well as underemployment. The need to upskill the youth, to invest in last mile service delivery, and to make national projects viable via investments, are not issues which can be confined to the borders of a country.

Fig 4: Potential Demographic Situation in South Asia in Comparison to Global Statistics



Source: United Nations World Population Prospects.

62. The World Bank Group, "Leveraging Urbanization in South Asia." World Bank Publication, November 21, 2018.

Infrastructure

The risk for investors resides primarily in the mitigation of domestic and administrative delays. The needed capital investment in infrastructure in the region, on an average, is 9 per cent of the GDP.⁶³ Infrastructure in South Asia also lags behind most regions.⁶⁴ Deficits exist in transport and connectivity and logistical performance, whether it is the borders or the ports, or access to basic services like infrastructure, sanitation⁶⁵ and electricity. On electricity alone, South Asia suffers the most outages as compared to other regions. This reduces productivity and man hours.⁶⁶

There is a need to mobilise more private finance to tackle the shortage of funds. South Asia has the peculiar distinction of having the public sector finance 60 per cent of its infrastructure, but, at the same time, it suffers from low collection of user charges. Reports cite an unwelcoming environment⁶⁷ for the private sector as the reason for the low investment. The private sector refrains from investing in public projects as it faces issues in the recovery of project costs and the unpredictability of revenue streams.

As all the countries in the region seek to move to higher income brackets and out of the middle-income trap, innovative ways to finance projects would be sought. Development of capital markets to free up bank-induced lending and incentivisation of insurance companies and pension funds which could potentially share infrastructure risk, are needed. The technical expertise and management practices of the private sector are also desirable.

63. Shikha Jha and Rosa Mia Arao. "Infrastructure Financing in South Asia," ADB South Asia Working Papers, vol. 59, <https://www.adb.org/sites/default/files/publication/454316/swp-059-infrastructure-financing-south-asia.pdf>. Accessed on September 15, 2019.

64. Jules Gray, "World Bank Report Highlights South Asia Infrastructure Problems," *The New Economy*, April 23, 2014, Business.

65. In 2015, only 56 percent of the South Asian residents used safely managed drinking water services, in comparison to 71 percent of the global population. Vanita Suneja, "Despite Progress, South Asia Faces Daunting Challenges in Water and Sanitation," Inter Press Service, WaterAid, July 16, 2018, Updates.

66. The World Bank Group, "In the Dark: How Much Do Power Sector Distortions Cost South Asia," World Bank Report, December 12, 2018.

67. The World Bank Group, "South Asia Firms Up its Growth Lead, Despite Budget Woes," World Bank Press Release, July 9, 2018.

The vision of a South Asian Association for Regional Cooperation (SAARC) energy ring, conceptualised to bring about an interconnected electricity system across the region, still remains elusive. Cross-border power connectivity has gained currency among governments due to the benefits of scaling and lowering costs, the potential for cooperation on renewables, and diversifying of supply. The energy trilemma⁶⁸ of energy security, affordability and sustainability is a task at hand for cooperating partners. There exist several opportunities in this regard as South Asia is home to the second largest population living on off-grid supplies of electricity.⁶⁹

Skills development is also an important dimension of cooperation and investment. A demand supply mismatch in the region has been aggravated by global trends of an economic slowdown. Opportunities to collaborate on curriculum and training programmes that could tackle common issues like lack of hard and soft skills, should be focussed upon. This would complement national efforts towards the same. Collaboration on three major growth sectors among the South Asian countries such as agriculture, manufacturing and services is key to moving forward on this. The factors discussed above allude to the various sectors and levels of cooperation that face challenges and need to be pursued to their potential in the future.

Having analysed the strategic, economic and social consequences of development as a form of diplomacy, the potential for India to leverage this tool in the region merits discussion. Where does India stand in terms of

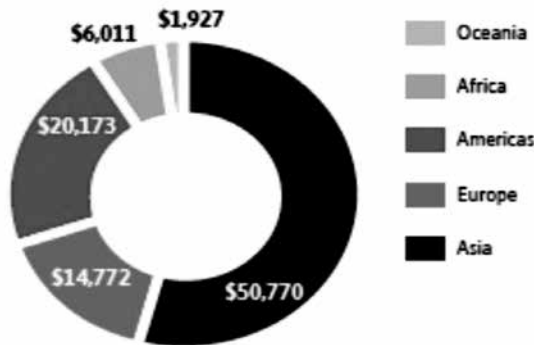
As all the countries in the region seek to move to higher income brackets and out of the middle-income trap, innovative ways to finance projects would be sought. Development of capital markets to free up bank-induced lending and incentivisation of insurance companies and pension funds which could potentially share infrastructure risk, are needed.

68. UNESCAP, "Integrating South Asia's Power Grid for a Sustainable and Low Carbon Future." The Asian Pacific Energy Forum, April 1, 2018.

69. ET Energy World, "Offgrid Communities," <https://www.power-technology.com/features/offgrid-communities-renewable-energy/>. Accessed on September 1, 2019.

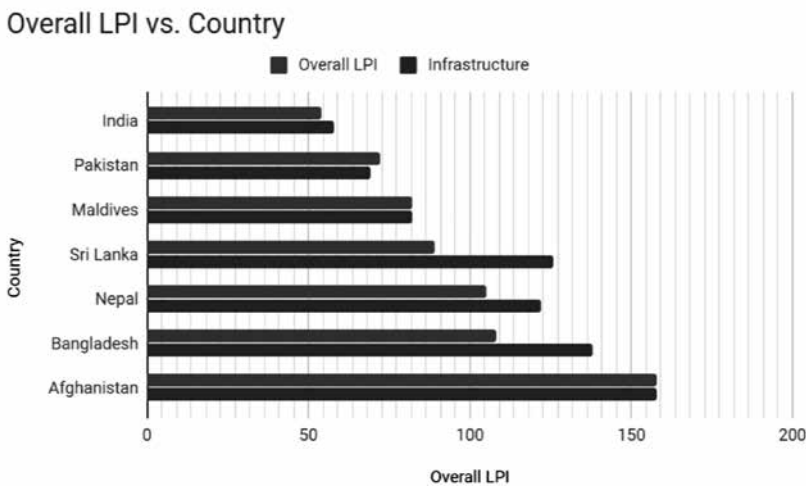
providing and receiving development assistance? Is it willing to challenge established players in the South Asian region and find its own niche?

Fig. 5: Prevailing Infrastructure Investment Needs per Region (2016-2040)
(in \$ billion terms)



Source: World Bank data and chart.

Fig 6: Rankings on the World Bank’s Logistics Performance Index (LPI) and Infrastructure Rankings



Source: Author’s own calculations based on World Bank Data. Figure shows the rankings on the World Bank’s Logistics Performance Index and the rankings on the sub-category of infrastructure.

INDIA IN THE QUAGMIRE: POTENTIAL AND OPPORTUNITIES

In a region where it is seen as a big brother figure, it is important for India to deepen trade and also manoeuvre the trust deficit in the region. Aid partnerships are not new to Indian foreign policy and can, in fact, be said to assume an integral part.⁷⁰ In 1960-61, India supported Nepal's 5-year plan with \$36 million in aid.⁷¹ In 2003, India announced its stake to global prominence by launching the India Development Initiative and the discontinuation of aid programmes of all but five countries.⁷² This had a symbolic effect as it signalled India's attempts to be seen as an aid giver rather than a passive recipient. India also launched its development aid agency in 2012, called the Development Partnership Administration (DPA).

The mandate of DPA was to oversee, execute, monitor and evaluate assistance programmes. India has traditionally used three important means of development assistance: technical cooperation, including capacity building as well as knowledge transfer; Lines of Credit⁷³ (LOCs); and grants assistance. This allows India to maintain several conditionalities in its interactions. For instance, LOCs are extended on the condition that the recipient imports Indian equipment, technology and goods on deferred credit terms.⁷⁴

Trade in kind has also been a part of India's basket to its neighbouring countries as has financing of large-scale infrastructure projects, particularly in Bhutan, Bangladesh and Nepal. However, a figure which is telling is that imports from the region form only 0.6 per cent of its total imports.⁷⁵

70. Supriya Rowchowdhury., "India's External Aid- Lessons and Opportunities", *Economic and Political Weekly*, 48(36), 2013, pp. 32-34.

71. S. Chaturvedi and E. Sidiropoulos, *Developing Cooperation and Emerging Powers: New Partners or Old Patterns* (London: ZED Books, 2012).

72. The German, Japanese, Russian, British and American programmes were continued. Nick Langton, *Emerging Economies like India's Make Aid Recipients the New Donors* (San Francisco: Asia Foundation, 2012).

73. They are essentially concessional loans with a grant element, administered by the EXIM Bank.

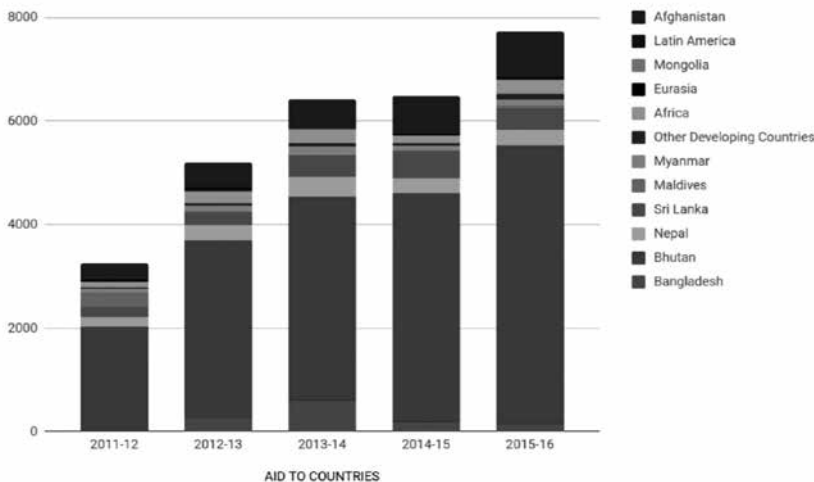
74. Abhishek Mishra, 2018, Observer Research Foundation, <https://www.orfonline.org/expert-speak/changing-nature-india-lines-of-credit-africa/>. Accessed September 21, 2019.

75. S. Sirohi, 2018, Observer Research Foundation, <https://www.orfonline.org/expert-speak/south-asia-high-costs-of-not-trading-with-neighbours-45195/>. Accessed September 21, 2019.

India's basket of investments is mostly the same across the region, but it is able to tweak it according to the requirements of the individual countries. For instance, India's aid to Afghanistan comprises large and small infrastructure projects, humanitarian assistance, capacity building initiatives as well as community building projects which focus on vulnerable and border areas through education, agriculture and health. It reflects a desire to have an in-depth understanding of the area, the local communities, and their lifestyles. In fact, this uses a more decentralised approach to development which is bottom up, rather than merely being focussed on promoting industrial growth.⁷⁶

India has, with its endeavours, emerged as a net donor country, with most of the aid given being confined to the South Asian region.⁷⁷ However, where it lags and where it, in turn, gains disfavour is in terms of completion of its projects and not their sanctioning.

Fig 7: India's Aid to Countries in Dollar Terms (in millions)



Source: Author's own calculations based on MEA data.

76. Emma Mawdsley, "The Changing Geographies of Foreign Aid and Development Cooperation", *Transactions of the Institute of British Geographers*, 37(2), 2011, pp. 21-25.

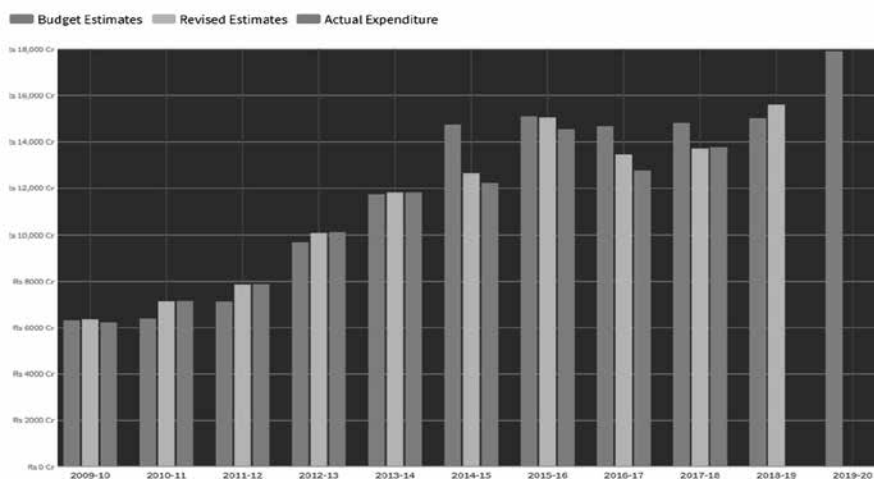
77. Saurabh Kumar and Aparna Sharma, *India's Neighbourhood Aid Policy* (Jaipur: CUTS International, 2023).

Fig 7 indicates India's bonhomie with Bhutan which gets a large chunk of its development assistance. In 2019, however, it has seen a substantial drop as India has chosen to diversify its donee base. For instance, aid as a percentage of total foreign assistance for Bhutan dipped from 43.7 per cent to 34 per cent and subsequently to 30 per cent for 2016-17, 2017-18 and 2018-19 respectively, even as absolute allocations remained somewhat constant. On the other hand, aid to Mauritius has tripled.

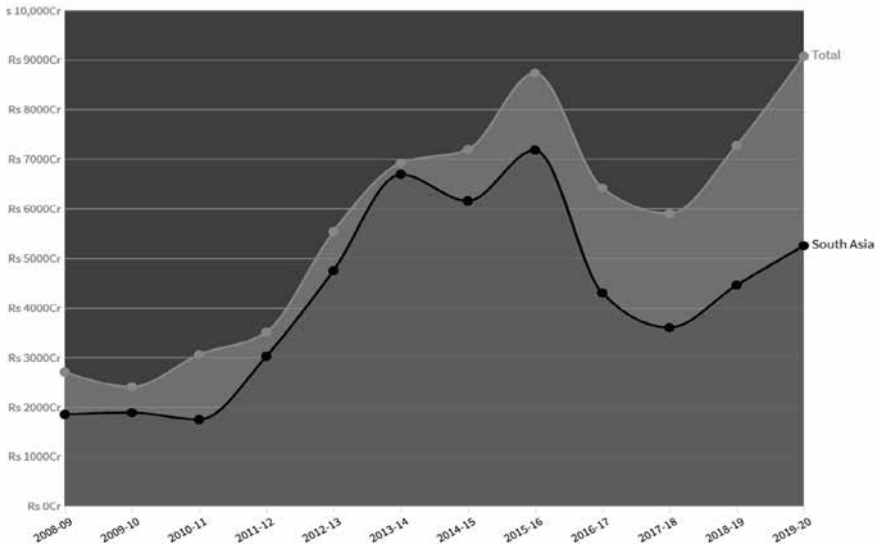
In terms of absolute allocations, the trend has been upward. This signifies the importance of foreign assistance in the current era. Budget allocations remain at an all-time high with Rs 17,884.78 crore in the 2019-20 budget.

However, South Asia has always retained a significant chunk of India's foreign assistance, as Fig 10 below depicts. It is significant to note from Fig 9, however, that the share of South Asia's allocation as a percentage of total aid expenditure has been on a decline. It now accounts for 58 per cent of the foreign aid. This is because of India's desire to expand and diversify its footprint in the Indian Ocean.

Fig 8: MEA's Allocation, as Opposed to Actual Expenditure in the Last Decade



Source: The Wire, <https://thewire.in/diplomacy/budget-mea-foreign-policy-charts>

Fig 9: South Asia's Share in India's Foreign Aid Expenditure

Source: The Wire, <https://thewire.in/diplomacy/budget-mea-foreign-policy-charts>

India is now a net donor of foreign aid.⁷⁸ In recognition of the complexity and scale of new projects undertaken by India, the Ministry of External Affairs (MEA) had created the office of the Development Partnership Administration (DPA) within its precincts in 2012. It handles the conceptualisation and execution of aid projects. It has been segregated into three divisions for better implementation of its commitments: DPA I looks into project appraisals; DPA II deals with sectors in which India has a competitive advantage, such as technical and economic cooperation, capacity building schemes and disaster relief; DPA III deals with project implementation.

India's development capacity has been spread thin with the expanse of cooperation in Southeast Asia, Caribbean, Pacific Islands, Africa, Latin America, as well as its own neighbourhood. Its composition basket

78. Ministry of External Affairs, 2017, Lok Sabha Unstarred Question No. 3245, New Delhi: MEA, Government of India.

comprises grant assistance, which is given primarily to countries in its own neighbourhood, and Lines of Credit which are given on concessional terms to the African and Latin American countries.⁷⁹

Out of the programmes of assistance which India provides, two stand out for their success and innovative conceptualisation: the Indian Technical and Economic Cooperation (ITEC) programme which teaches a wide variety of skills and courses on subjects like information technology, English language, project management, health, irrigation, among others, and the Small Development Projects (SDPs) which emphasise on building infrastructure projects on a localised and small scale.

India also formulates certain guidelines that it follows under IDEAS (Indian Development and Economic Assistance Scheme), for the purpose of committing to, and executing, assistance. Its Project Preparation Facility (PPF) has been recently developed to act as an incubator for new ideas in other countries.⁸⁰

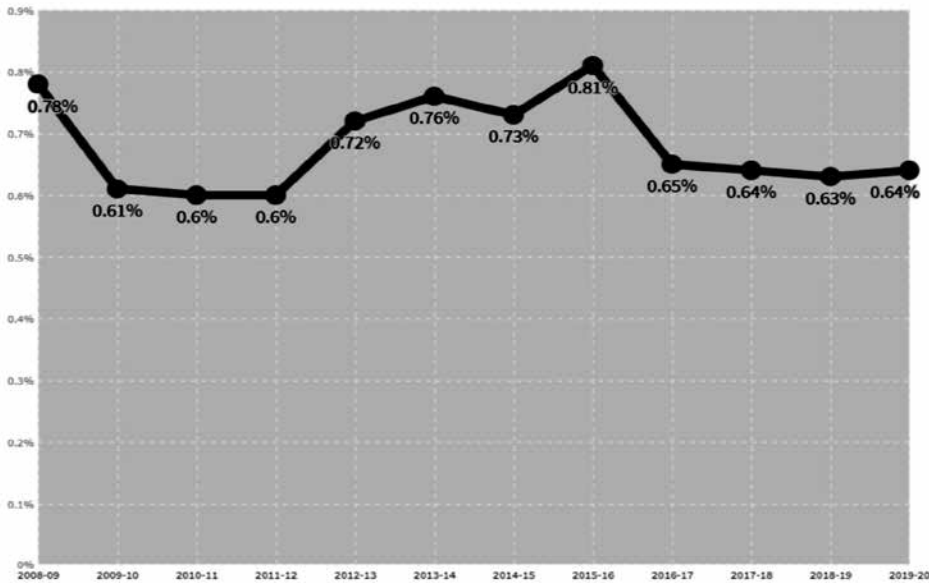
The 2019 budget has seen an increased allocation from the previous financial year by over 25 per cent,⁸¹ particularly because of increased investments in Mauritius, Maldives, Nepal and Bhutan. The increase is on account of insecurity caused by China's political manoeuvring in the region. The 2016-17 and 2017-18 periods had earlier seen a dip in foreign investment by India, but there has been a boost this year due to renewed priorities. As a percentage of the budget share, there is a gentle rise in expenditure by the MEA.

79. Ministry of External Affairs, 2019, Lok Sabha Starred Question No. 53, New Delhi, MEA, Government of India.

80. Ministry of External Affairs, 2019, Rajya Sabha Unstarred Question No. 460, New Delhi, MEA, Government of India.

81. Ibid.

Fig 10: MEA's Share of the Total Budget Expenditure of the Government, over the Last 10 Years



Source: The Wire, <https://thewire.in/diplomacy/india-lines-of-credit-aid-diplomacy>

India's policies in the region could make use of some of the successes of countries that have been involved in giving development assistance, in order to formulate a model that works best for it. It is, thus, important to analyse the performance of countries in the matrix, to gauge lessons and considerations. Several criticisms have been levelled against Indian projects and assistance abroad, the key among them being cost overruns and inconsistency. An example of this is the Chabahar port which was slated to be an important node for India's connectivity scheme to Afghanistan and Central Asia. However, it hasn't seen any allocations in the last two years from the foreign aid assistance package.

India has frequently chosen a benign role for itself in the development space. It prefers not to impose on, or interfere in, the national planning of

the countries it is involved with. However, a comparative assessment with other countries' experiences could tell us whether India needs to maintain its posturing or shift from it, with regard to making the best use of development politics in South Asia.

MYANMAR: UNDERTSTANDING POLITICAL AND SOCIAL DYNAMICS

JAYESH KHATU

George Orwell, an imperial British police officer turned novelist, in his novel *Burmese Days* and in his essay "Shooting an Elephant", describes the situation in the British Burma as clear when looked at from afar, but complex when one tries to go close. Such a description of the situation in colonial Burma¹ can be applied to the present day happenings in Myanmar as well.

Almost a decade ago, Myanmar marched towards a democratic polity, away from the military junta rule. The pro-democracy leader, Aung San Suu Kyi's vision of a democratic Myanmar was coming to a reality with democratic elections taking place in Myanmar. The world had its eyes on the political transition of Myanmar, and hopes for a stable, prosperous and vibrant Myanmar making a strong footprint at the global level were rising. But the ethnic cleansing and Rohingya crisis made the country drown in criticism about its democratic ideals and human rights violations.

Myanmar has become synonymous with Suu Kyi and the Rohingya crisis over a period of time. But the country is more than its national leader Aung San Suu Kyi and the Rohingya crisis. The role played by the Tatmadaw, Myanmar's military, in the country's politics and security is unique in the

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1. 'Burma', instead of 'Myanmar', is used in the paper to describe pre-1989 events in the Republic of the Union of Myanmar as that was the earlier official name.

Myanmar is located strategically and remains crucial for its two big neighbours, India and China. For India, it forms a crucial part of New Delhi's Act East policy which aims at larger integration with the Association of Southeast Asian Nations (ASEAN) as well as the farther East.

Asian continent. The country is struggling through its democratic transition where, although the Tatmadaw, has facilitated constitutional reforms, it is unwilling to cede its powers with respect to Myanmar's defence, internal security and internal affairs. The constitutional reforms that are necessary for bringing democracy to the country in the true sense are difficult to be realised due to the Tatmadaw's hold over the country's Parliament and constitutional amendment process.

The country had boosted economic liberalisation and privatisation in 2010, but the process remains slow and leaves Myanmar behind in gaining the fruits of an open market economy and globalisation. Over and above the Rohingya crisis, are problems with respect to the Kachin, Arakan, Shan and Naga minorities that have been continuing to threaten its integrity since independence.

Myanmar is located strategically and remains crucial for its two big neighbours, India and China. For India, it forms a crucial part of New Delhi's Act East policy which aims at larger integration with the Association of Southeast Asian Nations (ASEAN) as well as the farther East. Similarly, the country borders India's northeastern region with which it shares geographical, cultural and ethnic similarities. India has been vying to establish connectivity to its northeastern region via the Kaladan Multi-modal Project. New Delhi's active collaboration with the Nay Pyi Taw in dealing with the Naga insurgency is curbing the threat posed by the National Socialist Council of Nagaland-Khaplang [NSCN (K)] to the integrity of the two nations. This paper aims to understand the political and social dynamics of Myanmar to better comprehend the current socio-political turmoil that is taking place there.

POLITICAL DYNAMICS

The process of redesigning the polity has been continuous in the landscape of Myanmar since its independence. Independent Burma welcomed parliamentary democracy by adopting the 1947 Constitution and forming a civilian government led by Prime Minister U Nu. The Tatmadaw staged a *coup d'état* on March 2, 1962, bringing a halt to democracy in Burma. After coming to power, Gen Ne Win launched the "Burmese Way to Socialism"² and abolished the federal system, forming a single-party state.

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In 1974, a new Constitution came into effect which transferred power nominally from the armed forces to a People's Assembly headed by Ne Win himself. The State Law and Order Restoration Council (SLORC) under Gen Saw Muang was formed in 1988 to be the body responsible at the political helm following the anti-government riots. The SLORC further renamed Burma as Myanmar in 1989.

The year 1990 saw thwarted elections in which the victory of the opposition National League for Democracy (NLD) was ignored by the Tatmadaw whose rule continued. Demands for a democratic Constitution were gearing up and in 2004, a constitutional convention commenced its working only to successfully deliver a Constitution in 2008 that was criticised domestically as well as internationally.³

A Democratic Leap

In 2010, Myanmar held its first democratic elections since 1990 which ended decades of dictatorship in the country.⁴ Aung San Suu Kyi's National League

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2. This included state control of resources, industries with a unitary form of government at the centre, reducing foreign players' influence and a more inward-looking economy.
 3. Tom Fowthrop, "Burma's Sham Constitution", *The Guardian*, March 12, 2008, <https://www.theguardian.com/commentisfree/2008/mar/12/burmasshamconstitution>.
 4. Lee Jones, "Explaining Myanmar's Regime Transition: The Periphery is Central", *Democratization*, vol. 21, no. 5, 2014, pp. 780-802, <https://www.tandfonline.com/doi/full/10.1080/13510347.2013.863878>. Accessed on November 29, 2019.

for Democracy (NLD) boycotted the polls and the Union Solidarity and Development Party (USDP), that comprised mostly ex-military personnel and was backed by the Tatmadaw, came to power.⁵ President Thein Sein, a former general and prime minister under the military junta became the head of the state in a civilianised administration. The NLD participated in the bye-elections held in 2012 and won 43 seats, paving the way for Aung San Suu Kyi to become a member of Myanmar's Parliament. This led to certain positive developments wherein the Western states annulled most of the economic sanctions imposed on Myanmar.

Who Rules Myanmar?

In the November 2015 elections, the NLD led by Suu Kyi won a landslide victory, giving the party a majority in the combined Union Assembly, the Pyidaungsu Hluttaw. But the party's leader, Suu Kyi, has been often referred to as the *de facto* leader of the Republic of the Union of Myanmar, where she holds the post of state counsellor⁶ of Myanmar, equivalent to a prime minister, and the current president is Win Myint. The clarification for this nomenclature lies in the Constitution of 2008.

The Constitution of 2008 was envisaged as a way towards democracy, eclipsing the military dictatorial regimes. But after more than a decade since its inception, the dream of democracy has not been realised in Myanmar. Impediments for the same can be traced from the Constitution's inception itself where a farcical referendum⁷ paved the way for this new Constitution which was opposed by the opposition at the domestic level and criticised internationally as well. The referendum was a fabricated act of assent by the military leadership to portray its desire to pave the way for democracy in Myanmar by keeping the real power to itself. The manner of its occurrence, and its result question the very basis of the adoption process of the current Myanmar Constitution.

5. Ibid.

6. Euan McKirdy, "New Government Role Created for Myanmar's Aung San Suu Kyi", CNN, <https://edition.cnn.com/2016/04/06/asia/aung-san-suu-kyi-state-counsellor-role-created/index.html>.

7. The referendum which was held after the devastation of Cyclone Nargis witnessed 98.12 per cent turnout and was approved by 92.48 per cent 'Yes' vote.

The next cause of contention is Article 59 (f)⁸ of the Constitution which prevents a person with a foreign national spouse or children from holding the office of Myanmar's president. According to this article, a person cannot become the head of the state of Myanmar if his/her family or immediate family members, especially children and husband, are not citizens of the Republic of the Union of Myanmar. This was probably inserted in the document keeping in mind Suu Kyi's aspiration for leading the country.⁹ Suu Kyi's late husband, Michael Aris, was an English historian, while her sons, Alexander Aris and Kim Aris, are both citizens of the United Kingdom. Evidently, the Article with its sub-clause in the Constitution is extremely indicative of the Tatmadaw's intention of averting Suu Kyi's accession to power.

In addition to this, there exists a 'coincidentally deliberate' clause guaranteeing 25 per cent of the parliamentary seats to the Tatmadaw's nominees in the 2008 Constitution. This democratic sway of Myanmar's military over the Assembly of the Union of Myanmar, the Pyidaungsu Hluttaw, is not without a purpose. A majority of the constitutional amendments in the 2008 Myanmar Constitution require 75 per cent or more of the votes of its parliamentarians as per Article 436 of the Constitution.¹⁰ It has to be, thus, noted that no amendment in the Constitution is possible without the consent of these 25 per cent military nominations that form an integral part of Myanmar's polity. The USDP, a party constituting ex-military personnel, complicates the matter by tilting the power equation in the Tatmadaw's favour. This further augments the democratic myths in Myanmar's polity which remains open for further criticism.

Moreover, important ministries like defence, border and home affairs are reserved for these 25 per cent nominees of the Tatmadaw.¹¹ Thus, the

8. Refer, Constitution of the Republic of the Union of Myanmar, http://www.burmalibrary.org/docs5/Myanmar_Constitution-2008-en.pdf.

9. KyawZwa Moe, "Making Myanmar's Constitution Democratic", *The Irrawaddy*, February 22, 2019, <https://www.irrawaddy.com/opinion/commentary/making-myanmars-constitution-democratic.html>. Accessed on February 23, 2019.

10. Refer to the Constitution text, http://www.burmalibrary.org/docs5/Myanmar_Constitution-2008-en.pdf.

11. Refer Article 232 (j)(2) of the Constitution text, http://www.burmalibrary.org/docs5/Myanmar_Constitution-2008-en.pdf.

borders and the military remain exclusive spheres of military dominance and engaging on the issues concerning the same for a foreign power or neighbours of Myanmar has to be with the Tatmadaw directly. On the contrary, in a democratic polity like India, it is the civilian government consisting of elected representatives of the people who are at the helm of decision-making, policy formulations and who maintain relations with other countries, including its neighbours. Therefore, traits of authoritarianism are still visible in Myanmar even though the country embraced democracy almost a decade ago through its 2008 Constitution.¹² The mounting Rohingya crisis, in its third year now, stands as a classic example of the complexities in Myanmar's Constitution and the inability of the civilian government to address the same. But 'what grants legitimacy to the Tatmadaw?' is the question to be pondered upon.

Legitimacy to the Tatmadaw

The Tatmadaw derives its legitimacy from numerous sources which date back even to pre-independence Myanmar. The body acted as the guardian of Burma from the colonial aggression of British and later, even against the Japanese in the pre-independence era. The Thirty Thakins, of which Aung San was a senior leader, went ahead and formed the Burma Independence Army, with Japanese help.¹³ Later known as the Burma National Army (BNA), with Ne Win as its commander, the BNA led the country towards its independence in 1948. The BNA was subsumed under a larger political alliance called the Anti-Fascist People's Freedom League (AFPFL) of which Aung San became the president in 1946. Thus, the AFPFL was formed with many civilian leaders affiliated with the BNA and having strong political aspirations.

It was the political class in Burma that invited the armed forces to take control of the political affairs of the country. The AFPFL's internal crisis led the Prime Minister of Burma, U Nu to invite the Tatmadaw in 1958 to

12. John Garfilo, "Myanmar Almost Last in Asia-Pacific on Rule of Law Index", *The Myanmar Times*, March 7, 2019, <https://www.mmmtimes.com/news/myanmar-almost-last-asia-pacific-rule-law-index.html> . Accessed on March 7, 2019.

13. Joyce Chapman Lebra, *Japan and the Genesis of the Burma Independence Army* (1972).

form a caretaker government.¹⁴ This gave the armed forces a legitimate hold over the affairs of the state of Burma and under the Tatmadaw, the 1960 parliamentary elections were held. The armed forces handed over power to U Nu's faction of the AFPFL as it emerged victorious in the elections, setting a precedent for the other countries in Asia. This precedent lasted for two years when the Tatmadaw led by Gen Ne Win staged a *coup d'état* in March 1962. The general formed the Burmese Socialist Programme Party and gifted the nation the 'Burmese Way of Socialism'. This marked the eclipse of parliamentary democracy in Burma, with commencement of military junta rule, led by the *Tatmadaw*.¹⁵

The Tatmadaw has successfully moulded itself and functioned as per the necessities of the time and socio-political situation in the country. Gen Ne Win's rule ended with the 8888 Uprising which took place in 1988 where thousands of students, monks and masses protested against the regime over its authoritarian ways of ruling, the 1974 Constitution and the poorly implemented economic reforms also known as the "Burmese Way of Socialism". The new military junta's rule commenced with the State Law and Order Restoration Council (SLORC) taking charge of the country's governance with a coup against Ne Win, further adopting an outward-looking economic model. The SLORC facilitated the general elections in 1990 in which Suu Kyi's National League for Democracy (NLD) won a landslide victory. The SLORC dismissed the results and assumed power by itself. This, accompanied by the junta's human rights abuses, necessitated numerous sanctions by the West which hit Myanmar's economy badly.¹⁶ The SLORC was made dysfunctional and reconstituted in 1997 as the State Peace and Development Council (SPDC) which retained most of the previous regime's members. The SPDC gave the country a new Constitution in 2008 adopted through a controversial

14. Frank N. Trager, "The Failure of U Nu and the Return of the Armed Forces in Burma," *The Review of Politics*, vol. 25, no. 3, 1963, pp. 309-28, <http://www.jstor.org/stable/1405735>. Accessed on March 1, 2019.

15. Ibid.

16. Factbox: "Sanctions Imposed on Myanmar", Reuters, October 11, 2018, <https://www.reuters.com/article/us-myanmar-sanctions/factbox-sanctions-imposed-on-myanmar-idUSTRE79A0YR20111011>. Accessed on March 1, 2019.

The Tatmadaw has acquired and retained power successfully in Myanmar’s political set-up, in every possible way, and the extent to which democracy flourishes in Myanmar is still dictated by the armed forces. The Tatmadaw has become a powerful political force and an indispensable institution for the country over a period of time.

referendum and facilitated a roadmap for democracy to flourish in Myanmar.¹⁷ Moreover, the Saffron Revolution of 2007, and the economic and political protests led by the masses and majorly by the monks, necessitated more political and economic reforms.¹⁸ But for the Tatmadaw, any reform, to be democratic in nature, had to involve the military leaders for keeping the union intact and maintaining territorial sovereignty.

The NLD did not participate in the 2010 general elections as a sign of protest against the 2008 Constitution. The election results went in favour of the Thein Sein-led Union Solidarity and Development Party (USDP) which was formed in 1993 by the junta-led SLORC. It is to be noted that even in the current government set-up led by the NLD, the armed forces retain special powers and hold over the Parliament because of the 25 per cent seats’ constitutional reservation and hold over important ministries like border affairs, making Myanmar a ‘hybrid model democracy’. Thus, the Tatmadaw has acquired and retained power successfully in Myanmar’s political set-up, in every possible way, and the extent to which democracy flourishes in Myanmar is still dictated by the armed forces. The Tatmadaw has become a powerful political force and an indispensable institution for the country over a period of time. Even though the armed forces witnessed rallies against them like the 8888 Uprising and the Saffron Revolution from the monks, it receives their support as well, especially against the minority Muslim Rohingyas. It was evident in the 2012 anti-Rohingya demonstrations by the monks, along with the commoners, in support of President Sein’s proposal to deport the

17. n. 7.

18. “2007 Uprising In Burma”, *Burma Campaign UK*, <https://burmacampaign.org.uk/about-burma/2007-uprising-in-burma/>. Accessed on March 1, 2019.

Rohingya Muslims.¹⁹ On February 4, 2019, the *Myanmar Times* reported, “Thousands March to support Tatmadaw” in Yangon which has faced international criticism over its handling of the Rohingya crisis. But it is not just the Rohingyas who face persecution at the hands of the Tatmadaw. Myanmar’s multiple ethnicities like the Arakans, Kachins, Shans and Chins are still at loggerheads with the armed forces.

Armed Forces’ Spending

The military remains a powerful institution in the political life of Myanmar and expectedly, allocations for the defence sector in the government budgets over the years have been high, compared to most other countries with the similar size of economy as Myanmar, with 12-13 per cent share of the budget being allocated to defence.²⁰ Developing economies in the world face the question of defence versus development with marginalising the defence budget compared to the budget on education or healthcare. But Myanmar remains aloof from such debates and prefers higher spending on the defence aspect due to lack of indigenisation of the defence industry and growing necessities of the Tatmadaw concerning internal and borderland security.

Myanmar remains a net importer of defence equipment and, thus, the Tatmadaw seeks to expand military capabilities through significant purchases of equipment from foreign powers, with Russia historically being the major source of defence purchases by Myanmar. But the growth of China as a major power also resulted in increasing defence cooperation

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19. “Mandalay Monks Hold Anti-Rohingya Protests”, *The Irrawaddy*, September 3, 2012, <https://www.irrawaddy.com/news/burma/mandalay-monks-hold-anti-rohingya-protests.html>. Accessed on March 2, 2019.

20. Refer Stockholm International Peace Research Institute (SIPRI) data, <https://data.worldbank.org/indicator/MS.MIL.XPND.ZS>.

of Myanmar with its northern neighbour in the recent years. Apart from technical exchanges and armed forces' training, military hardware purchases constitute a key aspect of the defence ties between the two countries. But, with ever changing global dynamics, a thrust towards diversification of the sources of its defence purchases is being undertaken. Reports of Myanmar's arms trade with Israel were making news in 2018 even when the United Nations report on Myanmar's military generals committing crimes against humanity surfaced.²¹ Reports on Myanmar's plans to purchase six Su-30 fighter jets from Russia have also surfaced recently.²²

Myanmar's Tatmadaw has faced criticism for equipping the armed forces with advanced military hardware and marching towards modernisation of the forces, on the one hand, and its atrocities on the Rohingyas and the state of civil war in the country, on the other.²³ With a steady rise in the capital expenditure on defence, the Myanmar government's intentions on internal peace and stability are being questioned. With friendly neighbours like India and China, the question remains: 'defence against whom?'. It is to be noted that the actual size of the forces comprising the Tatmadaw is not known in the public domain. This data deficit makes research on the Tatmadaw, its abilities and functioning an arduous task.²⁴ Andrew Selth, an academic expert on the Tatmadaw and its affairs, notes, "Ironically, the lack of hard data about the Tatmadaw, the police, and their intelligence agencies seems at times to be in inverse proportion to the number of observers who feel qualified to write about them, and to make bold pronouncements about aspects of their leadership, internal politics, and operations."²⁵ Lack of information on one of the most powerful and indispensable institutions in Myanmar's social,

21. "Israel's Dirty Arms Deals With Myanmar", *Haaretz*, August 28, 2018, <https://www.haaretz.com/opinion/editorial/israel-s-dirty-arms-deals-with-myanmar-1.6429524>. Accessed on February 18, 2019.

22. "Amid Continued Criticism, Myanmar Still Spending Big on Military", VOA News, February 1, 2018, <https://www.voanews.com/a/myanmar-military-spending/4234303.html>. Accessed on January 21, 2019.

23. *Ibid.*

24. Andrew Selth, *Routledge Handbook Of Contemporary Myanmar* (Routledge, 2018).

25. Andrew Selth, "Myanmar's Armed Forces and the Rohingya Crisis", United States Institute of Peace, 2018.

economic and political spheres makes analysis of the institution and its larger impact on these spheres cumbersome.

SOCIAL DYNAMICS

Ethnicities at Loggerheads

Myanmar can be referred to as a land of multiple ethnicities struggling to survive under a single and unified polity. The struggle between distinct ethnicity and common Burmese identity has been the main reason for the instability that Myanmar faces today. The secessionist movements in Myanmar are a product of the colonial legacy and the formation of newly independent nation-states.²⁶ Following their 'divide and rule' policy in Burma, the British had divided the country into frontier areas amongst the ethnic minorities and the majority Burman population. These frontier areas were governed by the separately created British Frontier Services and were inhabited by the ethnic Chins, Shans, Karens and Kachins.²⁷ This resulted in the rise of ethnic-based nationalism which was markedly distinct from the majority Burmans living in the valley areas.²⁸ While the valley people were familiar with the Western notion of the nation-state system due to the colonial British efforts to inculcate this in Burma from 1826 till 1941, the other ethnicities preferred closer ties with their respective clans.²⁹ This quest for possessing a different identity in a distinct political geography remains the root cause of the conflict in the present-day Burma as well.

The Karen National Union (KNU) was the first secessionist group to be formed at the time of Burma's independence in 1947, advocating a separate nation-state for the Karens. They formed their own army named the Karen National Liberation Army (KNLA) in 1949 to fight the national government's armed forces. Predominated by the Christian-majority Karens, the KNLA

26. Nehginpao Kipgen, *Myanmar: A Political History* (Oxford University Press, 2016), p. 9.

27. Brigadier J. F Bowerman, "The Frontier Areas of Burma", *Journal of the Royal Society of Arts*, vol. 95, no. 4732, 1946, p. 44. JSTOR, www.jstor.org/stable/41363324.

28. Robert H. Taylor, "Perceptions of Ethnicity in the Politics of Burma." *Southeast Asian Journal of Social Science*, vol. 10, no. 1, 1982, pp. 7-22. JSTOR, www.jstor.org/stable/24490906.

29. Ibid.

underwent the longest civil war in independent Myanmar's history against Myanmar's government. The decline of the KNU was triggered in 1994 when its numerous soldiers defected and formed the Democratic Karen Buddhist Army (DKBA) which occupied the union's headquarters at Manerplaw.³⁰ Eventually, in 2012, the KNU agreed to a ceasefire with Myanmar's civilian government backed by the Tatmadaw. It has been 70 years since the conflict but it finds no end even with the existing ceasefire, as frequent skirmishes between certain splinter groups of the KNLA and the Tatmadaw still take place.³¹

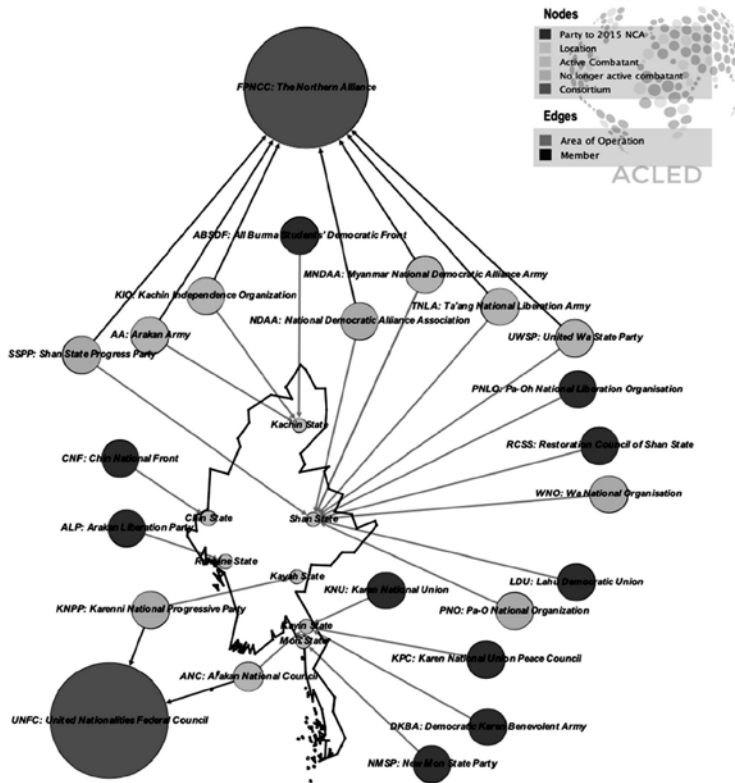
The Kachin Independence Organisation (KIO), an ethno-political organisation, was formed in 1961, aiming at self-determination. With a majority Christian population in the Kachin state, the KIO formed its armed wing named the Kachin Independence Army. The KIO underwent a ceasefire with the Tatmadaw in 1994, only to be broken in 2011 due to growing mistrust between the KIO and the armed forces' intentions of peace.³² Even though the organisation has weakened over a period of time due to multiple reasons, it has garnered new strength by forming an alliance of groups fighting the Tatmadaw in Northern Myanmar for their respective causes. One such group is the Arakan Army, the armed wing of the United League of Arakan. It is one of the most recent ethnic minority armed groups to fight against the Tatmadaw and the state authority. Formed in the year 2009, the group has merged in a stronger Northern Alliance along with the Kachin Independence Army and other secessionist groups. The following image gives a fair idea of the ethnic secessionist groups present in Myanmar and the complexities involved within them.

30. Ibid.

31. Lawi Weng, "Tatmadaw, KNLA in Standoff After Fighting Over Road Rebuilding", *The Irrawaddy*, March 13, 2018, <https://www.irrawaddy.com/news/burma/tatmadaw-knla-standoff-fighting-road-rebuilding.html>. Accessed on March 1, 2019.

32. Daniel Combs, "Myanmar's Fighting Season in Kachin", *The Diplomat*, May 18, 2018, <https://thediplomat.com/2018/05/myanmars-fighting-season-in-kachin/>. Accessed on February 28, 2019.

Fig 1: Conflict Networks



Source: The Armed Conflict Location & Event Data Project (ACLED), <https://www.acleddata.com/2018/04/05/myanmar-conflict-update/>.

While most of the conflicts in Myanmar have ethnic dimensions, the Rohingya crisis is one distinctly based on religion and the issue of citizenship. Even though the KIO has a Christian majority population, distinct from the majority Theravada Buddhists in Myanmar, its struggle is regarded as the one based predominantly on ethnicity rather than religion. But when it comes to the Rohingya minority, the scenario becomes murkier. The Rohingyas are an ethnic minority group consisting primarily of Muslims residing predominantly in the Rakhine state. The government of Myanmar fails to accept the Rohingyas as legitimate citizens of Myanmar which is evident

The Rohingyas are an ethnic minority group consisting primarily of Muslims residing predominantly in the Rakhine state. The government of Myanmar fails to accept the Rohingyas as legitimate citizens of Myanmar which is evident from the Citizenship Act of 1982 that deprived the Rohingyas of citizenship in Myanmar.

from the Citizenship Act of 1982 that deprived the Rohingyas of citizenship in Myanmar. Under this Act, full citizenship is based primarily on membership of the “national races” deemed by the state to have settled in Myanmar before the British invasion of Burma in 1824.³³ Myanmar’s government, on the basis of this Act, fails to accept the Rohingyas as legitimate citizens of Myanmar and they are labelled as illegal Bengali migrants from Bangladesh. Therefore, the Citizenship Act of 1982 has severely restricted the rights of the Rohingyas and made them ineligible for basic social, education and health services.³⁴

The Tatmadaw initiated a clearance operation in August 2017 following an attacks by the infamous group, Arakan Rohingya Salvation Army (ARSA), on the security forces and posts in Myanmar’s Rakhine state. In response to these acts of ‘terror’ by the ARSA, the Tatmadaw went ahead in burning Rohingya villages in northern Rakhine with the aim of driving out the ARSA forces. The crisis has become regional, with Rohingya refugees fleeing and seeking shelter in neighbouring countries like Bangladesh, India, Thailand and Malaysia. The atrocities by Myanmar’s military have received condemnation by the international community on a massive scale. Former UN High Commissioner for Human Rights, Zeid Ra’ad al-Husseini had termed the operation “a textbook example of ethnic cleansing”.³⁵

33. “Burma/Bangladesh Burmese Refugees in Bangladesh: Still No Durable Solution, Discrimination in Arakan”, *Human Rights Watch*, vol 12., no. 3 (C), May 2000, https://www.hrw.org/reports/2000/burma/burm005-02.htm#P132_34464. Accessed on November 26, 2018.

34. Carl Skutsch, *Encyclopedia of the World’s Minorities* (Routledge), p. 128.

35. On September 11, 2017, High Commissioner for Human Rights of the United Nations Zeid Ra’ad al-Husseini addressed the United Nations Human Rights Council in Geneva. See “UN Human Rights Chief Points to ‘Textbook Example of Ethnic Cleansing’ in Myanmar”, UN News, September 11, 2017, <https://news.un.org/en/story/2017/09/564622-un-human-rights-chief-points-textbook-example-ethnic-cleansing-myanmar>. Accessed on 27 November 2018.

Natural Resources and Secessionism

With certain ethnic groups seeking autonomy or secession and the Tatmadaw curbing the same for achieving the national unity and territorial integrity of Myanmar, control of extractive resources is also a crucial factor which cannot be overlooked in these battles between the military and the secessionist ethnic groups.

It is actually the incentives derived from extractive minerals in Myanmar which provide a strong source of income for the groups to fund their secessionist movements by conducting lucrative recruitment drives and purchasing military equipment to fight the Tatmadaw.³⁶ For instance, teak forests and hardwood in the Kachin and Shan states bordering China find an illegal route to the lucrative Chinese markets.³⁷ In a similar manner, rubies, jade and other precious gems have been smuggled illegally to the global markets from ethnic minority areas. The case of Kachin's jade had been highlighted by an Non-Governmental Organisation (NGO) Global Witness in 2015 which had equated illegal jade's value being half of Myanmar's Gross Domestic Product (GDP).³⁸

Therefore, unless there is an amalgam of interests between the concerned ethnic minorities and the Tatmadaw, Myanmar's peace process will find no positive end. Surrendering and signing peace deals for the secessionist groups means giving up their rights over the natural resources of their lands. Possession of natural resources and the illegal income derived from them would be at stake if they agree to the peace proceedings.

Unless there is an amalgam of interests between the concerned ethnic minorities and the Tatmadaw, Myanmar's peace process will find no positive end.

36. Jay Benson, "Blood Teak: How Myanmar's Natural Resources Fuel Ethnic Conflicts", *The Diplomat*, April 30, 2015, <https://thediplomat.com/2015/04/blood-teak-how-myanmars-natural-resources-fuel-ethnic-conflicts/>. Accessed on January 12, 2019.

37. "Kachin State Authorities Continue Illegal Timber Seizures, Myanmar Official Says", Radio Free Asia, February 18, 2016, <https://www.rfa.org/english/news/myanmar/kachin-state-authorities-continue-illegal-timber-seizures-myanmar-official-says-02182016160853.html>. Accessed on February 10, 2019.

38. "Jade: Myanmar's "Big State Secret"", *Global Witness*, October 23, 2015, <https://www.globalwitness.org/en/campaigns/oil-gas-and-mining/myanmarjade/>. Accessed on January 14, 2019.

According to the 2018 Myanmar Opium Survey released by the United Nations Office on Drugs and Crime (UNODC), Myanmar's opium poppy area fell to 37,300 hectares in 2018, down 10 per cent from the 41,000 hectares reported in 2017.³⁹

The International Crisis Group (ICG), in its recent report on the drugs menace in Myanmar, made a strong mention about the enclaves which foster the drug menace in the country.⁴⁰ It states that such enclaves are under the "full territorial control of armed groups that have durable ceasefires with Nay Pyi Taw."⁴¹

The report focusses on the link between conflict and opium in Myanmar. According to the report, the highest levels of cultivation continue to take place in the unstable areas of the Shan and Kachin states.⁴² With respect to the Shan state, bordering China, it states, "Good infrastructure, easy access to necessary chemicals from China and safe production facilities under the protection of government-affiliated militias and rebels in enclaves make the Shan state a major source of high quality crystal meth."⁴³ With the establishment of the China-Myanmar Economic Corridor (CMEC), connecting the Yunnan province of China to the Shan state in Myanmar, the drug problem could possibly aggravate, with better connectivity via roads and railways promoting more illegal activities.

Alternative sources of income and livelihood should be devised in such states so that dependence on natural resources may be minimised substantially. Therefore, it is in the interest of Myanmar's government to arrive at a consensus with the armed groups with respect to sharing, and governance of natural resources and not just addressing issues like the

39. "Myanmar Opium Survey", UNODC Regional Office for Southeast Asia and the Pacific, December 2017, https://www.unodc.org/documents/southeastasiaandpacific/Publications/2017/Myanmar_Opium_Survey_2017_web.pdf. Accessed on February 1, 2019.

40. "Fire and Ice: Conflict and Drugs in Myanmar's Shan State", International Crisis Group, January 8, 2019, <https://www.crisisgroup.org/asia/south-east-asia/myanmar/299-fire-and-ice-conflict-and-drugs-myanmars-shan-state>. Accessed on January 31, 2019.

41. Ibid.

42. Ibid.

43. Ibid.

federal structure and autonomy in governance. There have been efforts in this direction recently with the conduct of the 21st Century Panglong Peace Conference.

The 21st Century Panglong Peace Conference

The 21st Century Panglong Peace Conference is a series of multi-stakeholders sessions held in Myanmar aimed at national reconciliation and long-term peace in the country. The conference was attended by representatives from the Tatmadaw, union government, Parliament and Ethnic Armed Organisations (EAOs). This peace conference is named after the 1947 original conference called by Gen Aung San, Daw Aung San Suu Kyi's father, the head of the interim government of Burma. Before Burma's independence from colonial Britain, Gen Aung San had brokered an agreement for a post-independence federal union in the conference with various ethnic minority groups, granting unusual autonomy to them along with the right to secede.⁴⁴ The word 'secession' was included in the first Constitution of Burma, drafted in 1947, to permit the non-Barmar ethnic nationalities to acquire independence after ten years of Burma's foundation.⁴⁵ But Gen Aung San was assassinated within a few months of this historical peace conference and the agreement lost substance, with successive military governments failing to honour the same. The Karen National Union (KNU) was one of the first armed secessionist groups emerging in 1947, with dozens others following suit.⁴⁶ These armed secessionist struggles continue today, more than 70 years after Myanmar's independence and pose a bigger threat to Myanmar's territorial integrity.

44. Nehginpao Kipgen, "Why are 'Secession' and 'Federal Army' so Crucial to Myanmar's Peace Process?", Jindal School of International Affairs, June 2, 2017, <http://www.jsia.edu.in/article/why-are-%E2%80%98secession%E2%80%99-and-%E2%80%98federal-army%E2%80%99-so-crucial-myanmar%E2%80%99s-peace-process>. Accessed on December 21, 2018, p. 16.

45. Josef Silverstein, "Politics in the Shan State: The Question of Secession from the Union of Burma", *The Journal of Asian Studies*, 18, 1958, p. 49, https://www.jstor.org/stable/2941285?seq=1#page_scan_tab_contents.

46. Jessica Harriden, "Making a Name for Themselves" Karen Identity and the Politicization of Ethnicity in Burma," *Journal of Burma Studies*, vol. 7, 2002, pp. 84-144. Project MUSE, doi:10.1353/jbs.2002.0003

A negotiated settlement, paving the way for peace-building, nationwide dialogue and stability was sought through the Nationwide Ceasefire Agreement (NCA).⁴⁷ The agreement was agreed upon on March 31, 2015, consisting of the terms of the ceasefire along with their implementation and monitoring mechanisms, and a roadmap for political dialogue as well.⁴⁸ The Government of Myanmar and sixteen EAOs stood parties to the agreement to which ten groups became the signatories.⁴⁹ For aiding the senior leaderships of the EAOs and augmenting their capacity to engage effectively in adhering to the NCA, a Joint Peace Fund was established which further facilitated the establishment of the Nationwide Ceasefire-Signatories (NCA-S) EAO Office in Yangon.⁵⁰

Since 2015, the government has promoted the ceasefire agreement that several ethnic minority groups have signed. The Northern Alliance includes the Kachin Independence Organisation (KIO), Myanmar National Democratic Alliance Army, Ta'ang National Liberation Army, and Arakan Army that have not signed truces with the government.⁵¹ The third session of the 21st Century Panglong Conference was held in July 2018 after the first two sessions (August 2016 and May 2017) failed to make any headway in resolving the ethnic conflicts and reaching peace deals.⁵² Fourteen points were signed as Part-II of the union accord during the third session, but the

47. Refer The Nationwide Ceasefire Agreement between the Government of the Republic of the Union of Myanmar and The Ethnic Armed Organisations, https://Peacemaker.un.org/Sites/Peacemaker.un.org/Files/Mm_151510_ncaagreement.pdf.

48. Ibid.

49. These ten groups collectively known as NCA-S EAO (Nationwide Ceasefire Agreement – Signatory, Ethnic Armed Organisations) are: 1. All Burma Students' Democratic Front (ABSDF), 2. Arakan Liberation Party (ALP), 3. Chin National Front (CNF), 4. Democratic Karen Benevolent Army (DKBA), 5. Karen National Union (KNU), 6. KNU/Karen National Liberation Army Peace Council (KNU/KNLA PC), 7. Pa-O National Liberation Organisation (PNLO), 8. Restoration Council of Shan State (RCSS), 9. New Mon State Party (NMSP), 10. Lahu Democratic Union (LDU).

50. <https://www.jointpeacefund.org/en/who-we-are>.

51. Nan LwinHninPwint, "Government Agrees to Meet Northern Alliance as a Group", *The Irrawaddy*, February 5, 2019, <https://www.irrawaddy.com/news/burma/government-agrees-meet-northern-alliance-group.html>. Accessed on February 10, 2019.

52. Richard Dolan, "The Problem With the 21st Century Panglong Conference", *The Diplomat*, August 6, 2016, <https://thediplomat.com/2016/08/the-problem-with-the-21st-century-panglong-conference/>. Accessed on December 2, 2018.

gathering was unable to reach a consensus on an agreement in the security sector.⁵³ Nevertheless, the fact that non-signatories of the NCA were present in the overall conference and even vowed to continue the peace process was a significant development.⁵⁴

Hindrances in the Reconciliation Process

The reconciliation process falls short of achieving positive objectives due to multiple factors. The unwillingness of the seven major ethnic organisations to sign the NCA is the first hindrance for enduring peace in the conflict-ridden nation of Myanmar.⁵⁵ The Northern Alliance has its own agenda that does not call for a bilateral dialogue between the government and an ethnic organisation, but supports dialogue between the government and the whole alliance as an entity.⁵⁶

The second major issue that makes the ongoing conflict seem to be never-ending is the question of having a federal army.⁵⁷ The Tatmadaw, having sufficient power and say in the Myanmar government, has always been supportive of the concept of one nation-one army-under one command. It, moreover, insists on having a single national army under the future negotiated new federal framework.⁵⁸ On the contrary, the ethnic armed groups are adamant on reclaiming their respective armed forces in a new possible set-up of a federal army.⁵⁹ They fear a repeat of history when their aspirations for autonomous divisions were suppressed brutally by the Tatmadaw.⁶⁰

53. For details, refer, <http://www.statecounsellor.gov.mm/en/node/2048>.

54. Ye Mon, "Controversy, Progress at the Third Panglong Conference", *Frontier Myanmar*, July 16, 2018, <https://frontiermyanmar.net/en/controversy-progress-at-the-third-panglong-conference>. Accessed on December 20, 2018.

55. *Ibid.*

56. "Myanmar's Northern Alliance of Ethnic Armies Says It Wants Bilateral Pacts With Army", *Radio Free Asia*, February 27, 2019, <https://www.rfa.org/english/news/myanmar/myanmars-northern-alliance-of-ethnic-armies-02272019171225.html>. Accessed on February 22, 2019.

57. Nehginpao Kipgen, n. 44.

58. *Ibid.*

59. *Ibid.*

60. *Ibid.*

The Tatmadaw's concerns are also genuine with respect to having parallel 'militias' with weaponry, along with the existing armed forces. This also augments the concerns regarding the solidarity and integrity of the nation, protecting national boundaries and commanding the armed forces. The three national duties, namely, non-disintegration of the union, non-disintegration of national solidarity and perpetuation of national sovereignty are underpinned by the Tatmadaw for each citizen.⁶¹ The case for distinct ethnic armies stands contrary to these duties as well. According to the NCA text, all the signatories have agreed to remain in the union.⁶² In other words, agreeing to the non-disintegration of the union means that ethnic armed groups have agreed not to support any activity or movement that could break up the country. It also means that they would not demand an independent state of their own.

Peace and development in Myanmar remain distant unless national reconciliation is aimed for. It becomes necessary to heed the grievances of the secessionist groups operating from the border areas of the country. The NLD, when it came to power, had promised rolling out economic packages for boosting the country's manufacturing and services sectors. The private sector has been apprehensive of the NLD's commitment to business, investments and industry. The NLD under Suu Kyi has been actively supporting peace and reconciliation in the fragmented landscape of Myanmar. Its involvement has been so intense that critics have been vocal in denouncing the current regime's prioritisation of peace-building over the economy and constitutional amendments as this has allowed the Tatmadaw to control and manage the political change, along with interfering in the shaping of the country's foreign policy.⁶³ Thus, it becomes essential to have an overview of the economic dynamics of Myanmar at present.

61. Refer Article 383 of the Constitution, http://www.burmalibrary.org/docs5/Myanmar_Constitution-2008-en.pdf.

62. Refer the NCA text, https://peacemaker.un.org/sites/peacemaker.un.org/files/MM_151510_NCAAgreement.pdf.

63. Sai Wansai, "Constitution-Making and Peace Process Stagnation in Myanmar: Will a Conditional Clause Help Restore Confidence in the 21st Century Panglong Conference?", The Transnational Institute, September 3, 2018, <https://www.tni.org/en/article/constitution-making-and-peace-process-stagnation-in-myanmar-will-a-conditional-clause-help>. Accessed on February 20, 2019.

CONCLUSION

Myanmar has immense potential for growth and development considering factors like its natural resources' strength, strategic location of the country and demographic dividend. Despite all these, Myanmar struggles internally and remains one of the least developed economies of the world today. As analysed above, the country faces political challenges like the constitutional crisis, the institutional parliamentary crisis and the role of the Tatmadaw in its democratic set-up. The influence of the Tatmadaw has played an important role in the state-building process of Myanmar which, in turn, has given it a unique identity in the global politics. The Tatmadaw's self-allocated role of nation-building in Myanmar poses a challenge to the country's democratic functioning. 'Are the armed forces efficient in managing the affairs of the country' or 'are they acting as an impediment to the prosperity of Myanmar?' The answer is an assertive 'No' for the first question and a strong 'Yes' for the second.

Peace and development are not possible to achieve without national reconciliation. It becomes necessary to heed the grievances of the secessionist groups operating from the border areas of the country. The role of the democratic government in this regard cannot be denied. A 'hybrid government' in Myanmar complicates peace-building and development where the armed forces' security and governance roles overlap. Constitutional reforms are needed to, first, minimise, and then, completely curb the role of the Tatmadaw in Myanmar's political set-up, and restrict it to security matters, paying allegiance to the will of the people at large.

Even when a country is open for foreign trade and availing economies of scale, it does not benefit if imports dominate its balance of payments. Myanmar's integration with ASEAN has helped its economy to grow and develop further, but the problem of illicit economies in Myanmar looms large. The real challenge lies in dealing with these extra-legal economies which do not add to the growth of the nation but act as a black hole in the economy. A significant question remains: 'Should development precede stability or will a stable nation-state attract growth and development?' Efforts for building a stable society in Myanmar should complement developmental goals.



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