



Centre for Air Power Studies (CAPS)

Forum for National Security Studies (FNSS)

Nuclear Wrap-up 2

Nuclear Dynamics Through the COVID-19 Lens



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Nuclear Dynamics Through the COVID-19 Lens

This was not to be. Not this pandemic. Not this state that we are in. And, not this publication. Early this year, the NuclearNerds, the group of scholars part of the Nuclear Security project at the Centre for Air Power Studies, had brought out a *Nuclear Wrap-up*. It encapsulated the major nuclear related developments of 2019. Each author examined and analysed the implications of all that happened in his/her subject of focus to provide the lay of the nuclear land.

The publication was appreciated for its breadth of scope and succinctness of approach. We decided to make it an annual publication. But, who knew then that just five months down the year we would be struck by a virus that would bring about a paradigm shift in our lives and interactions. The global pandemic has cast a shadow on the globe of the kind that had not been seen since World War II. Given the gravity of the situation, the NuclearNerds have felt the need for another wrap-up that can capture the impact of Covid-19 on the various nuclear issues -- from nuclear geopolitics to nuclear energy. So, here we are with this second *Nuclear Wrap-up – Nuclear Dynamics through the Covid-19 Lens*.

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Acceptance of Mutual Vulnerability and Responsible Behaviour: Equally Necessary for COVID-19 and Nuclear Deterrence

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The entire world has been in the grip of the novel Corona virus for more than a couple of months by now. The end of this fight is not yet in sight. Economies are in disarray, health facilities are overstretched, and all scheduled events for 2020 – from the personal to the international – stand postponed. While so much uncertainty hangs in the air, the only prediction that can be made with a sense of certainty is that a new kind of normal awaits us. This event marks a paradigm shift that will change our social, economic and political interactions.

For one, the current situation has made the wellbeing of each individual dependent on the good health and hygiene practices of the other. Each is beholden to the other for the security of his/her own health. Any weak link, or laxity in responsible sanitary actions, can lead to the spread of the virus and jeopardise a larger population. There is, therefore, a mutual vulnerability and a shared sense of risk. Each one of us is a prisoner to the other's sense of responsibility and rationality.

For analysts of nuclear strategy these concepts ring a bell. The possibility or risk of use of a nuclear weapon by the adversary is sought to be deterred by the idea that he too would not escape unscathed from nuclear damage. This state of mutual vulnerability and an ability to rationally calculate the costs and benefits of an action are supposed to undergird nuclear deterrence.

During the Cold War, the bilateral deterrent relationship was premised on the idea of both sides being able to cause unacceptable damage to each other in a nuclear exchange. Popular as the concept of mutual assured destruction or MAD, it is largely credited for having kept a nuclear war at bay. Since the US and USSR felt vulnerable to each other's damage, certain norms of nuclear behaviour evolved that helped establish crisis and arms race stability. The anti-ballistic missile (ABM) treaty, for instance, was central to formalising the idea of mutual vulnerability by prohibiting both sides from deploying missile defences that could offer protection from the nuclear attack of the other.

Interestingly, over the last couple of decades, the holders of the largest nuclear arsenals, USA and Russia, have been engaged in building capabilities and adopting nuclear postures that they believe can free them from mutual vulnerability. It is argued that mutual vulnerability checkmates the use of the weapon and thus makes it non-usable even for the purpose of deterrence. Therefore, in order to strengthen deterrence, one needs to signal invulnerability to the ability of the other to do nuclear damage. Two ideas of damage limitation have been developed in this context – missile defence (to make oneself impervious to nuclear attack) and limited nuclear war (to reduce one's damage by calibrating use).

The idea of BMD gained primacy in 2000 and the US decided to abandon the ABM treaty in 2001 to start deploying ballistic missile defence architecture – radars and interceptors to shoot down incoming nuclear missiles. The US repeatedly claimed that its BMD deployments were meant to defend its homeland and allies against a handful of missiles from nations like North Korea or Iran, who could not be deterred through the normal rational calculations of cost and benefit of nuclear use. But, Russia and China, the near nuclear peers of USA, perceived from American capability a

potential threat to their nuclear deterrence. Their response has been to go on improving their own offensive capabilities, such as by deploying countermeasures on missiles, making missiles capable of carrying multiple independently re-targetable warheads, increasing the speed and manoeuvrability of delivery systems through use of hypersonics, etc. The ensuing offence-defence spiral has ensured that both sides remain mutually vulnerable and hence away from the tendency to irresponsibly use nuclear weapons based on less than rational calculations of the damage they would cause or that they would suffer by initiating nuclear use.

The second way of minimising mutual vulnerability has been found in the idea of limited nuclear war, or the conduct of nuclear war in such a way that removes one's vulnerability to large-scale nuclear damage. A 'limited nuclear war' is expected to be fought with low yield nuclear weapons against military targets. Such thinking had been popular in the US in the 1960s-1980s when the strategy of flexible nuclear use was envisaged by using counterforce weapons of high precision and accuracy for a 'discriminate' nuclear war. Such use of the nuclear weapons was believed to liberate the nation from the tyranny of mutual vulnerability of

unacceptable damage promised by the strategy of deterrence by punishment.

However, the folly of the idea of limited nuclear war and the inability to actually run such operations without risking escalation had been realised by the end of the 1980s. It was eventually conceptualised by Presidents Ronald Reagan and Mikhail Gorbachev in a joint statement that admitted that a nuclear war could not be won, and therefore, should not be fought. This asserted the centrality of mutual vulnerability and the illogic of a nuclear war and became the organising principle of nuclear deterrence. While the presence of nuclear weapons continued to pose risks, these were believed to be the least dangerous when nuclear equations recognised mutual vulnerability and hence the need for responsible behaviour.

From the mid-2010s, however, the US appears to have been rethinking the concept of limited nuclear wars. This tendency has emerged in the context of the advances in disruptive capabilities and strategies of Russia and China. Russia's ambiguity, cultivated or otherwise, on its right to use low yield nuclear weapons in response to aggression with non-nuclear weapons, widely referred to as 'escalate to de-escalate'¹, is cited as the reason for Washington's search for a "range of limited and graduated options, including a variety

of delivery systems and explosive yields."² The US also believes that China's rapid build-up of its anti-access, area denial strategy poses a challenge to the credibility of its ability to follow up on a strategy of nuclear punishment in case of small confrontations. So, the US has felt a credibility gap by not having the capability or doctrine to use lower order nuclear threats against limited war techniques. The US dilemma was aptly captured by an American analyst, "For Russia, 'jab and grab' land incursions; for China, the creeping militarization of maritime zones. Both techniques operate below the threshold of deterrence by punishment and seek to create territorial *faits accomplis* that lower the costs of revisionism."³ In order to address such threats, the US NPR of 2018 recommends capabilities and options for 'limited' nuclear strikes.

While Russia and China have, not surprisingly, described these developments as destabilising and criticised them for lowering the nuclear threshold, they themselves have not shied away from developing similar or other asymmetric capabilities that would enhance their sense of invulnerability. The problem, however, with these developments is that they raise the risk of deterrence breakdown. This may happen through a deliberate action arising out of a sense of one's ability to

handle escalation. Or, it may happen more accidentally or inadvertently as events unfold uncontrollably due to miscalculation and misunderstanding.

These risks are important to understand, particularly in today's times, when the largest possessors of nuclear arsenals are engaging with each other from positions of hyper-nationalism and non-transparency as they fight the virus. There is a sharp mistrust and stress on all kinds of engagements, significantly accentuated by the pandemic. Going by their current vibes towards each other, it seems that negative perceptions and misunderstandings will keep security concerns alive and military programmes afloat. Even as military spending will have to be rationalised in keeping with the sharp plunge in economies, none of the major nations has announced any shelving or even slowdown of any of the planned nuclear modernisation programmes.

Greater militarization of international affairs and political relations is, therefore, likely to be the order of the day. Some of the events that have come to pass even as nations were in the midst of their fight against the virus substantiate this. A few examples should suffice. Russia conducted a test of a direct ascent anti-satellite weapon system, the Nudol, on 15 Apr 2020. It is claimed to be able to reach 1500 kms

above the earth and thus has the potential to hit earth observation satellites in the low earth orbit (LEO). The Russian test has been perceived by Washington as posing a clear challenge to its space systems though it has been working on addressing these already through the creation of a Space Force. China has continued to display assertive behaviour in the South China sea through conduct of military drills and deployment of new assets in the area. While the immediate targets of some of its actions were regional states like Vietnam and the Philippines, the message was also meant for others beyond the region too. In a most recent response to these moves, the US reported on 2 May that it had deployed 4 B-1 heavy bombers and 200 air crew to Guam to carry out deterrence missions.

In the wake of heightened misperceptions, faltering economies, and frayed nerves owing to the fight against the pandemic, it looks difficult to envisage a world imbued with greater international solidarity and cooperation, or empathy and ethics, in handling issues of global concern. Rather, one sees an accentuation of nationalist proclivities over internationalist predispositions. Consequently, concerns that need sustained global cooperative action, such as addressing risks of nuclear terrorism, non-proliferation, climate

change, migration, poverty, etc., will not receive the priority they deserve.

Amongst the solutions that can get us to constructively address the risks has to be the realisation and acknowledgement of mutual vulnerability. An understanding that we share these risks is critical. Much like the highly contagious virus that has shown up our health interdependence, nuclear weapons too showcase our security interdependence. In the absence of the admittance that our destinies are tied to one another, irresponsible sanitary behaviour at the individual level could be as disastrous as irresponsible nuclear use at the national levels.

The crisis created by the virus has made us understand the nuances of mutual vulnerability and our dependence on the other's good behaviour. It also offers an opportunity to nations to rethink their concepts of security. Do we have the sagacity and the will to do so? While the realists will quickly nod their heads in the negative, let's not underestimate the shock that has been delivered by the pandemic. The current indicators may look gloomy, but the battered economies and cash crunches may lead nations along the paths of cooperative security and collective wisdom. The jury is still out. Meanwhile, there is little doubt that acceptance of mutual vulnerability and responsible

behaviour is equally necessary for an individual's health as for international security.

Notes

¹ There is much confusion about whether Russia has ever claimed this as its nuclear strategy. For an insight into this debate see Olga Oliker and Andrey Baklitsky, "The Nuclear Posture Review and Russia De-escalation: A Dangerous Solution to a Non-existent Problem", *War on the Rocks*, Feb 20, 2018. Available at <https://warontherocks.com/2018/02/nuclear-posture-review-russian-de-escalation-dangerous-solution-nonexistent-problem/>

² Office of the Secretary of Defence, *Nuclear Posture Review*, Feb 2018. Retrieved from <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEARPOSTURE-REVIEW-FINAL-REPORT.PDF>, pp. 30-31

³ Ibid.

An abstract graphic consisting of several overlapping, pointed shapes. The shapes are primarily in shades of purple and blue, with some lighter blue areas. They are arranged in a way that suggests movement or a stylized figure. The text "Intentionally left blank" is centered over the graphic.

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Impact of COVID-19 on Russia-China Relations

Mr. Carl Jaison
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As the COVID-19 pandemic sweeps across the world, there is a growing sense of unpredictability over how countries respond to the ongoing health crisis. During such unprecedented times, do bilateral ties improve, deteriorate or stagnate between two countries? Let's take the example of the China-Russia relationship to determine the impact of COVID-19 on their bilateral ties and explore the convergences and divergences in their respective actions and statements. This would provide a contextual understanding of the short-term and long-term effects of the pandemic on their strategic relationship.

Background

China-Russia relations have been on the upswing in recent years. It was not very long ago that the two countries decided to upgrade their relations to a comprehensive strategic partnership. Russia, with its struggling economy and continuing suspicion of the West, has taken steps to engage with China and resuscitate its great power ambitions. On the other hand, China also sees tangible benefits in the partnership for its own rising influence in

world politics, not least because a multipolar world suits its interests. Moscow can meet the long-term energy needs of Beijing while in return the former staves off Western pressure through coordination of policies with the latter. The bilateral trade increased 5.6% year-on-year to \$17.2 billion in the first two months of 2020.¹ The result is that Russia is now China's ninth-largest trading partner, up from the tenth position in 2019. The improved economic and trade cooperation notwithstanding, the ongoing COVID-19 situation has impacted China-Russia relations, in the short term. The long-term impact remains to be seen.

Convergences

In one of the clearest cases of the divide in global opinion over the COVID-19 crisis, Russia along with South Africa backed China's refusal to entertain any discussion on the pandemic in the UNSC in late March. At that time, Russia had not encountered a major spike in cases unlike its Western counterparts and it rose to shield China from coming under criticism at the UN forum. Outside the UN, however, China is increasingly facing mounting pressure from across the world, and especially from

the U.S, over its handling of and delayed information on the novel Corona virus.

As far as China and Russia are concerned though, the two countries have jointly agreed to strengthen their cooperation on tackling the pandemic, with Chinese Premier Xi Jinping 'stressing that this demonstrates the high-level of China-Russia relations in the new era'.² Putin, for his part, appreciated the 'remarkably effective measures' taken by China to contain the spread, both inside China and outside through the important contributions made by Beijing to other countries. Interestingly, he also added that China's response represents 'a resounding answer to the provocation and stigmatization by a certain country over the COVID-19 epidemic', taking a veiled jibe at the U.S.

Apart from their mutual support to each other, Chinese and Russian medical & scientific experts have been working closely to develop vaccines and drugs for the COVID-19.³ Despite the reduction in flights to and from China, Russia had also been allowing planes from Beijing with medical equipment 'to refuel on its territory without creating any additional administrative hurdles'.⁴ Russia has also followed China's modus operandi in sending aid relief and specialists to places like Italy, Africa etc. Taking advantage of

the chaos in the public response in the U.S and European Union, Russia and China have combined to aid and assist COVID-19 hit regions around the world. While China manufactures the necessary products like facemasks, ventilators and other medical equipment, Russia utilizes its large fleet of Volga-Dnepr-run Antonov 124 to transport these items to countries like US, Spain and Italy. Despite allegations that both China and Russia are milking the opportunity to discredit Western responses to COVID-19, the two countries have been careful to display a united front in their messaging. Moscow even issued a BRICS Chairman's Statement expressing support for China's fight against the epidemic, which the foreign ministry at Beijing obviously welcomed.⁵

Both countries are cognizant of the impact caused by the virus on trade, bilateral investment and Chinese-funded projects in Russia. But Li Xingqian, Director of the Foreign Trade Department of the Chinese Ministry of Commerce believes that it would not 'alter the fundamentals and long-term momentum of bilateral economic, trade ties and cooperation in the energy sector, including the China-Russia east-route natural gas pipeline'.⁶ Moreover, Russia has continued to transport products such as coal, iron ore & lumber to China for processing between border regions while

'around 90 percent of export-oriented facilities in the Chinese regions bordering Russia have already returned to work.'⁷

Divergences

Despite the official-level support and statements, Russia's initial measures were indicative of a stress in its relations with China. Moscow was slow to offer assistance to Beijing when the outbreak was at its peak in China and was also one of the first countries to close its 4,300 km (2,670-mile) land border with China.⁸ Despite attempts to maintain close communications during the outbreak, China and Russia found themselves in each other's crossfires. For instance, in late February, Moscow ordered its public transport drivers to call law enforcement if they witnessed Chinese passengers travelling in them.⁹ This was met with indignation by the PRC Embassy in Russia who warned that such incidents could harm their good relations. But, the Chinese embassy played down the friction citing that communication problems might have resulted from the transition in the Russian government following the formation of cabinet of new PM Mikhail Mishustin.

Perhaps, the most sensitive issue to have cropped up between the two thus far is from the presence of Chinese labourers and traders who have come to work in

Russia, east of the Urals. Over the years, Chinese nationals, both for work and residential reasons, have frequented Russia's Far East regions. There is a prevailing sense that even after the crisis passes, the coronavirus outbreak will likely further add to eastern Russians' fears about any Chinese presence and stall the development of the region with Chinese help.¹⁰ Reservations with Russia have also been expressed in Chinese domestic discourse as well. Even as stranded Chinese nationals in Russia increasingly look to return back home, there have been reports that Beijing's decision to ensure tighter border control was because Russia had become 'the top source of imported Covid-19 cases in China'.¹¹

The crisis is further fueled by the day-to-day economic impact on bilateral trade due to the coronavirus outbreak – Russia's trade with China has seen a drop of \$15.68 million a day since mid-February.¹² Despite the diversification of trade basket between the two countries, the reduction in volume has caused considerable setback to previous Russian ambitions for bilateral trade to reach \$200 billion by 2024.

The short-term & long-term impact

In the short-term, the trade disruption could cripple the slow recovery of the Russian economy. Although China is

Russia's largest trade partner and bilateral trade volumes increased 10% in 2019 to hit the \$110 billion mark, the coronavirus outbreak has dealt a serious blow to further improvement in these figures. For instance, Russian shipping is suffering from the disruption due to the halt in sending supplies, cargoes and crew members to local ports in China.¹³ The other affected sectors are coal exports, fruit and vegetable imports and seafood exports to China. As the US sanctions continue to affect Russia's re-integration with the global economy, the economic relationship with China has gained renewed significance.

The restrictions on flight and travel from China has also disproportionately hampered Russia's tourism sector. The industry is set to lose \$38 million in two months and \$403 million if the ban is not lifted before this summer. Last year, Russia hosted 1.5 million Chinese tourists, the most from any single country.¹⁴ The COVID-19 will also result in China slashing its gas demand in the remaining quarters, further adding to Russia's misery. Despite assurances that the start-up of the China-Russia East Pipeline (CREP) is imminent, the recent impact of the virus outbreak on the oil & gas market is drastic, exacerbated by the price war between Russia and Saudi Arabia.

In the long-term, the fallout from the pandemic on the trade and economic front is unlikely to translate into negative implications for China-Russia relations. As was evident from the UNSC case, Russia and China continue to coordinate their policies in opposition to US and Western criticism. Even when US Secretary of State Mike Pompeo alleged that Russia and China were behind the COVID-19 disinformation and fake news campaigns in Western countries, the response from both countries not only rubbished these claims but also stressed on the importance of global cooperation to mitigate the crisis. As far as geopolitical goals are concerned, Moscow hopes to recalibrate its relations with the West in the post COVID-19 world while Beijing continues to chip away at multilateral institutions at the expense of the US.

However, the coronavirus impact on certain Russian sectors and the slowdown & growth of the Chinese economy underlines that the strategic partnership is not immune to sudden disarray. Unlike the deep economic & strategic integration and people-to-people contact amongst Western countries, the China-Russia relationship is still dependent on overlapping interests. This leaves the door open for unilateral policies that might prove troublesome for long-term bilateral stability, as Russia's

recent border closure highlighted. The relationship remains overly reliant on their mutual animosity towards the US. Although China officially designated Russia as its highest-level partner, the vast disparity in the respective size of their militaries and economies remains unaddressed. While the COVID-19 pandemic comes as a wake-up call to both sides on the limitations of their strategic partnership, the anti-West discourse is here to stay. In such a context, there is little scope for disruption in China-Russia relations.

Notes

- ¹ Global Times, “China, Russia join hands to minimize coronavirus impact: official”, March 12, 2020, <https://www.globaltimes.cn/content/1182404.shtml>
- ² Huaxia, “Xi, Putin discuss strengthening cooperation on fighting COVID-19 by phone”, XinhuaNet, 20 March, 2020, http://www.xinhuanet.com/english/2020-03/20/c_138897626.htm
- ³ CGTN, “China, Russia making progress in COVID-19 vaccine development: ambassador”, 25 February, 2020, <https://news.cgtn.com/news/2020-02-25/China-Russia-making-progress-in-COVID-19-vaccine-development-OmBAirSgz6/index.html>
- ⁴ Henry Foy and Michael Peel, “Russia sends Italy coronavirus aid to underline historic ties”, Financial Times, 23 March, 2020, <https://www.ft.com/content/b1c5681e-6cf9-11ea-89df-41bea055720b>
- ⁵ “Russian BRICS Chairmanship Statement on the Novel Coronavirus Pneumonia Epidemic Outbreak in China”, The Ministry of Foreign Affairs of the Russian Federation, 11 February, 2020, https://www.mid.ru/en/foreign_policy/news/-/asset_publisher/cKNonkJE02Bw/content/id/4035151
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- ⁹ Johan van de Ven, “Fair-Weather Friends: The Impact of the Coronavirus on the Strategic Partnership Between Russia and China”, The Jamestown Foundation, 28 February, 2020, <https://jamestown.org/program/fair-weather-friends-the-impact-of-the-coronavirus-on-the-strategic-partnership-between-russia-and-china/>
- ¹⁰ Paul Goble, “Coronavirus Hitting Russia East of the Urals Hard Economically but Not Yet Medically”, The Jamestown Foundation, 17 March, 2020, <https://jamestown.org/program/coronavirus-hitting-russia-east-of-the-urals-hard-economically-but-not-yet-medically/>
- ¹¹ Tommy Yang, “Unease at the border: Russia and China seek to downplay Covid-19 outbreak in Suifenhe”, The Guardian, 18 April, 2020, <https://www.theguardian.com/world/2020/apr/18/unease-at-the-border-russia-and-china-seek-to-downplay-covid-19-outbreak-in-suifenhe>
- ¹² Darya Korsunskaya, “Russia losing 1 bln roubles a day in trade with China over coronavirus – minister”, National Post, 20 February, 2020, <https://nationalpost.com/pmnh/health-pmnh/russia-losing-1-bln-roubles-a-day-in-trade-with-china-over-coronavirus-minister>
- ¹³ Vladislav Vorotnikov, “Coronavirus creates costly disruption for Russia-China maritime trade”, Safety at Sea (IHS Markit), 5 March, 2020, <https://safetyatsea.net/news/2020/coronavirus-creates-costly-disruption-for-russia-china-maritime-trade/>
- ¹⁴ Ka-Ho Wong, “How Will the Coronavirus Outbreak Affect Russia-China Relations?”, The Diplomat, 14 March, 2020, <https://thediplomat.com/2020/03/how-will-the-coronavirus-outbreak-affect-russia-china-relations/>



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Pandemic, Proliferation and Prevention

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The global crisis caused by the coronavirus has been likened to a slow nuclear war.¹ In the few months of its outbreak, it has infected almost thirty lakh persons and taken over two lakh lives worldwide.² Consequently, it has led countries to seal their borders and halt most of the social activities in order to contain its spread - which has further caused massive economic disruption worldwide. Its management has necessitated war-time mobilisation as various countries have come under lockdown, and the armed forces and paramilitary forces have been called in for maintaining law and order and execute mitigation operations in some nations.

The crisis has also exposed the various frailties of the liberal international order, which is believed to be a rule-based system defined by free, open markets and multilateral institutions. By defying the nature of such an order, several countries have steadily shut their borders and in some cases restricted the exports of essential medical supplies to cater to the rise in their domestic needs.³ At the domestic level, the pandemic has revealed the inefficiency of the healthcare systems,

inadequacy of law and order, and the inflexibility of supply chains. In India, the sudden lockdown of the entire country sparked a worrisome mass movement of daily wage workers from cities to the villages. The country has also witnessed demand and supply shocks, and it is predicted that the economy will be headed towards a slowdown.⁴ Further, with a compromised healthcare infrastructure, Indian hospitals have reported the shortage of testing kits and protective health supplies for the healthcare force.^{5 6}

While the current pandemic has shown the world its limitations in responding to a war-like situation - an actual nuclear war would be far more destructive and deadly and take place in a much shorter timeline. Its management would be beyond the control of any country; its costs would far exceed what any country can bear. A study published in *Science Advances* in October 2019 gave some alarming facts and figures pertaining to a nuclear war between India and Pakistan.⁷ It posited that an exchange of a total 350 warheads ranging between 15-100 Kiloton would not only destroy entire cities and cause massive casualties (it is

expected to vary between 5 - 12.5 crores in the subcontinent) but its after-effects would include fall in global average temperatures and precipitation as a result of the injection of soot into the atmosphere that would impact agriculture and cause famines across the world. The resulting crises in water and food supply would further exacerbate the risk of conflict, societal breakdown, economic crisis and disease outbreaks.⁸

Days before the outbreak of the coronavirus pandemic, international security forums were worrying about the uncertainty regarding the extension of the New START treaty that puts a cap on the nuclear forces deployed by the US and Russia. Earlier, in 2019, the United States withdrew from the Intermediate-Range Nuclear Forces (INF) treaty it had signed with the erstwhile Soviet Union in 1988 to ban the use of missiles with ranges between 500 and 5,500 kilometres. Of late, the introduction of various technologies, such as hypersonic missiles and Multiple Independently-targetable Re-entry Vehicles (MIRV) has pushed the states possessing nuclear weapons into an offence-defence spiral. Further, the failures of the world leaders in curbing the nuclear programmes of Iran and North Korea have added woes to the state of nuclear security. Thus, it was no surprise that, on 23rd

January 2020, the doomsday clock, maintained by the members of the Bulletin of the Atomic Scientists to signify the likelihood of a human-made global catastrophe was moved to 100 seconds to midnight.⁹ It is the closest the Clock has ever been to midnight.

To add to the challenges confronting the nuclear world today are the risks of 'nuclear entanglement'. The term refers to the intertwining of various non-nuclear weapons technologies, such as ballistic missile defences, dual-use missiles and hypersonic missiles, cyber weapons, and high-precision munitions with the nuclear weapons system. Nuclear weapons states often indulge in operational and geographical entanglement of their nuclear assets to confound the attempts of pre-emptive strikes by an adversary. This has inherent risks as it increases the chances of misperception and miscalculation during the fog of a war, and further raises the risk of inadvertent use of nuclear weapons.¹⁰ To illustrate, in an attempt to target conventional missiles, an adversary may unwittingly target facilities that house nuclear weapons; this situation may lead the conventional war to escalate to nuclear war.¹¹ In another likely scenario, a state might mistake an incoming hypersonic missile tipped with a conventional warhead from an adversary to be a nuclear

weapon. Hypersonic missiles travel at speeds exceeding Mach 5 (6,199 km an hour), and therefore may cause warhead and destination ambiguities. Thus, the state might immediately respond by launching a nuclear weapon and thereby spark a nuclear war.¹²

Both pandemics and nuclear wars are threats of transnational nature as they cause dangers of large scale and incalculable probability, thus causing their effects spill to across borders. John Steinbruner, an American scholar on arms control, has defined such threats as 'distributed threats' as they emanate from distributed processes. These include the unseen interaction of deployed forces, the erosion of legal standards, the evolution of dangerous pathogens, or the tipping of vital environmental balances. He argues that strategy to manage such threats must shift from 'contingency reaction' - which is the traditional way of responding to crises - to 'anticipatory prevention'. He asserts that such efforts would require global collaborative efforts.¹³

However, the liberal international order is waning and steadily getting replaced with a system governed by realist thinking. States are getting distrustful of the international regimes; they are withdrawing from the collaborative efforts that resulted from the rule-based order and

are now emphasising the primacy of national interest. Consequently, the risks associated with nuclear weapons have reached an all-time high.

Thus, while the ongoing pandemic reveals the limitations of the international community in mitigating the crises of great magnitude; the current global trends suggest that the prospects of nuclear non-proliferation as well as the complete elimination of nuclear weapons through global cooperation remain bleak. Within this context, the world leaders need to rethink the logic of nuclear deterrence and become mindful of the risks associated with nuclear entanglement. They need to take preventive measures against inadvertent use of nuclear weapons which includes drawing a clear line between its conventional and nuclear delivery systems, and developing separate supporting capabilities for each type of system. Such efforts towards nuclear disentanglement would eliminate the risk of nuclear escalation to a great extent, and spare humanity a disaster that would be beyond its capacity to effectively manage.

Notes

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² Figures as of 27th April, 2020

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China-Pakistan Relations during COVID-19

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The all-weather strategic partnership and diplomatic cooperation between China and Pakistan goes a long way. This cooperation at times has been extended well beyond formal strategic partnership where both the parties benefitted against their common adversary India. In February this year, a Chinese ship Dai Cui Yun, bound for Karachi was detained by Indian custom officers for carrying an autoclave which has military use and falls under India's "Dual-Use Export control" list¹. Although instances of nuclear technology transfer have happened many times in the past too, this shows another example of Beijing and Islamabad's strong strategic bond which is often described as "all-weather allies". In this backdrop, the recent supply of tonnes of Chinese medical supplies to Pakistan to help Islamabad deal with Covid-19 crisis comes as little surprise.

Expectations from China are high in Pakistan and so far, Islamabad has received generous amount of assistance from Beijing to fight Covid-19. Beijing appears willing to support Islamabad with medical and economic aid at a time when Pakistan's economy was already in dreadful shape before the pandemic hit the country. But,

what are the underlying reasons and mutual interest that bind both the countries to act in that particular way?

Pakistan expressed solidarity with China since the outbreak of the pandemic in Wuhan, the capital city of Hubei province of China. In early February when corona virus was primarily spreading in China, Pakistan donated 7000 masks to China through the Chinese Embassy in Pakistan². An offer was also made by Pakistan to send a field hospital along with a team of doctors to China to help Chinese people fight the virus during a telephonic exchange between Pakistani Prime Minister Imran Khan and Chinese President Xi Jinping.³ This was followed by passing of a resolution at Pakistan's National Assembly that stated "Pakistan stands united with China and extends its full support at this difficult moment"⁴. China's foreign ministry highly praised the Pakistani resolution and stated that "China highly commends Pakistan for passing the resolution... this resolution... once again proves that China and Pakistan are a community with a shared future. We stand together in times of difficulty and render mutual assistance to each other." China

also stated that “We also stand ready to strengthen communication and coordination with Pakistan in a highly responsible manner to safeguard the health and safety of Pakistanis in China.” Here it is noteworthy that this support to Beijing came at a time when coronavirus crisis was increasingly taking the shape of global pandemic and China was beginning to be cornered by nations across the globe for being the originator country of the pandemic.

On 16 March, barely a week after World Health Organisation (WHO) declared Covid-19 a global pandemic, Pakistani President Arif Ali Alvi visited Chinese President Xi Jinping in Beijing. Appreciating President Alvi’s visit to China at the critical time, a joint statement read, “Dr. Arif Alvi’s first visit to Beijing was a singular expression of Pakistan’s solidarity with its “iron brother.”⁵ Other than showing solidarity, the meeting also had another major significance which is discussed in the following portion.

In another persistent attempt to deflect the blame for the pandemic from China, Pakistani media claimed that the initial spread of the virus in Pakistan was caused by the Pakistani pilgrims returning from Iran rather than people who came from China or Chinese workers in the country⁶. On the other hand, special

measures have been taken by both Pakistani and Chinese government to ensure safety of thousands of construction workers who are involved in CPEC projects, a majority of whom are from China. According to Chinese construction and engineering company, Gezhouba, that has 11,000 Chinese citizens working for CPEC projects in Pakistan, a batch of 145 Chinese engineers and workers had arrived in Pakistan on 19 March amidst coronavirus outbreak under strict medical supervision. To ensure their safety they were flown via a charter plane and quarantined in specially made isolation centres in Islamabad⁷. Pakistan’s Prime Minister Imran Khan on 03 April, also ordered a relief package specifically for the construction industry and directed resumption of all China-Pakistan Economic Corridor (CPEC) related infrastructure and energy projects⁸. Pakistan government’s distinct treatment of Chinese workers even amid a global pandemic, indicates the significance of CPEC projects to strengthen Pakistan’s partnership with China and to fortify Islamabad’s regional footprint against India.

The Covid-19 confirmed cases had crossed the seventeen thousand mark in Pakistan⁹ as on 1 May. In a developing country as densely populated as Pakistan and which has expressed hesitation to impose total lockdowns in its various

provinces due to conflict of interest between its powerful clerics' community and government officials, the effect of the pandemic on public health can be quite severe and economically hard hitting¹⁰; Not to mention post Covid-19 socio-economic impact on the most vulnerable section of people. The problem is further worsened due to the lack of coordination between the federal and provincial governments of Pakistan.

Like most other countries, Pakistan's public health system is not prepared to deal with the enormity of the pandemic. By 30 March, confirmed coronavirus cases in the country had begun to surge, and a requirement for personal protective equipment (PPE), masks, testing kits and other medical supplies had become vital. At this time, China cooperated and donated aid to both the federal government and provincial government, with Pakistan PM lauding the aid to the country¹¹.

A few days after president Alvi's visit to Beijing, on 27 March, Pakistan received tonnes of protective gear and testing kits from China. A statement by Chinese embassy in Pakistan reported that "At least 2 tonnes of masks, test kits, ventilators, medical protective clothes worth Rs67 million were handed over [to Pakistani officials] at Khunjerab Pass". On the same day a plane carrying 50,000 testing kits

reached Karachi, the consignment was sent by China's Alibaba and Jack Ma foundation¹².

Within few days another batch of eight member Chinese medical team from China's Xinjiang Uygur Autonomous Region reached Islamabad airport along with medical materials and was received by Pakistani foreign minister at the airport. The foreign minister stated "...the (Pakistani) people expected China to come forth and China has lived up to their expectations"¹³. The medical team was expected to visit Punjab and Sindh provinces, one of the highly infected provinces of Pakistan. Till 1 May, out of a total of 17,439 cases in Pakistan, these two provinces reported 13,015 cases combined.¹⁴ A Chinese university has also agreed to work with Pakistani government to set up an emergency 1,000 beds field hospital in Lahore¹⁵.

As a part of its health care support to Pakistan, a major Chinese pharmaceutical company recently offered to conduct clinical trials of Covid-19 vaccine in Pakistan. In support of the initiative the company stated that "a successful clinical trial in Pakistan will make it one of [the] first few countries for the launch of a Covid-19 vaccine"¹⁶. The National Institute of Health (NIH), Islamabad, had welcomed the offer and would monitor the progress

of the trials before according approval. Executive Director of NIH stated that the benefit of the clinical trial in Pakistan will be that the country will be able to procure the vaccine on high priority basis if the vaccine proves to be successful. In an interesting turn of events, two days after the statement by NIH, special Assistant to Prime Minister (SAPM) on National Health Services (NIH) of Pakistan declared that Pakistan government will not go for clinical trial of the coronavirus vaccine in the country any time soon¹⁷. This contradiction shows the possible lack of coordination between the government officials to agree on a unified strategy to contain the pandemic.

In this respect, China's intent behind running the clinical trial in Pakistan instead of in China is not too clear. The phase-3 trial involves participation of thousands of healthy volunteers who will receive either a vaccine or placebo and this will be followed up for a long time to assess the efficiency of the vaccine¹⁸. If China conducts the trial in Pakistan, it will be conducted on Pakistani volunteers, which is unusual considering the fact that presently there is no initiative in Pakistan to develop vaccines for coronavirus.

According to data published by Human Right Watch, in the most recent figures available, the International Labour

Organization (ILO) estimated that in 2014 - 15, roughly four million people were employed in Pakistan's textile and garment factories, which contributed 8.5 percent of Pakistan's GDP and at least 50 percent of its total exports¹⁹. The numbers are higher now. A majority of these workers may lose their jobs due to factory closure and layoffs. Experts estimate that between 12.3 million and 18.5 million people in various sectors may lose their jobs²⁰. This might prove worse for Pakistan in the post Covid-19 scenario.

Economically, Pakistan is in dire need for foreign aid and debt relief. On April 15, Pakistan's foreign minister Shah Mahmood Qureshi sought support of his Chinese counterpart Wang Yi for a global initiative to give debt relief to developing countries. The foreign minister sought China's support for the initiative, including at the G-20 platform. The G-20 nations announced a temporary halt to debt repayments by world's poorest nations that are affected by the pandemic. Recently, Pakistan launched a \$595 million funding appeal, in collaboration with the United Nations and its partner organisations, for meeting the country's urgent needs in the fight against the Covid-19. Of this, World Bank had immediately made available a \$240m relief package and Asian Development Bank prepared an emergency loan package of \$300m²¹.

Pakistan has also appealed to China for relief, both for debt repayment and power purchases of over \$30 billion worth²². While these relief packages might provide temporary relief to Islamabad, in the long run reviving its economy from the effect of the pandemic might be far more challenging.

Pakistani President Arif Ali Alvi's visit to China in the wake of severe coronavirus outbreak was primarily aimed at showing solidarity with its all-time friendly neighbour, with an intention of getting support when Islamabad would need external assistance to deal with the pandemic and prevailing socio-economic and political situation. Another significant reason was to set its priorities – CPEC and Kashmir. At a time when the entire world prioritises fight against the global pandemic, the coverage on CPEC and Kashmir in China-Pakistan joint statement, demonstrates the primary focus of these countries. Besides reaffirming the depth of China- Pakistan bond, the joint statement reported that “The Pakistan side briefed the Chinese side on the latest developments, including its concerns, position, and current urgent issues [on the situation in Jammu and Kashmir]. The Chinese side underscored that it was paying close attention to the current situation and reiterated that the Kashmir issue was a dispute left from history, and

should be properly and peacefully resolved based on the UN Security Council resolutions... China opposes any unilateral actions that complicate the situation” and that “A CPEC Authority was established to oversee the expeditious implementation of CPEC projects.”²³ It was reported that the 10th Joint Cooperation Committee (JCC) meeting of CPEC will be conducted soon. JCC is the institutional framework of CPEC. This highlights that it is significant for both the parties to expedite work of CPEC and during the current lockdown PM Imran Khan's announcement of relief package specially aimed at construction workers and decision to resume the work on CPEC projects during the lockdown comes as no surprise²⁴.

Indeed, the Chinese assistance to Pakistan comes at a time when Islamabad urgently needs it, but it is not without any gain at China's end. The outbreak of Coronavirus from Wuhan has severely impacted China's international reputation. Pakistan is trying its best to keep it intact by showing solidarity and praising China's effort to contain the pandemic. Similarly, in the joint statement, China stated that “On the basis of nation-wide mobilization, China adopted the most comprehensive, rigorous and thorough measures in little time to contain the virus.”²⁵. In order to portray itself as one of the leading countries to contain the virus at the earliest

it emphasized that “China has made major progress in prevention and control of the virus and will win "People's War" against Covid-19.”²⁶.

While Pakistan is struggling to contain the spread of the virus, PM Imran Khan’s attempt to downplay the severity of the pandemic might prove fatal for the country in the near future²⁷. In the post Covid-19 scenario, Pakistan’s challenge will be to revive its economy that is projected to be one of the worst affected among the developing countries. Pakistan’s effort to accelerate the CPEC projects is an important part of strengthening the China-Pakistan relations further as it will provide leverage against their common adversary in South Asia – India. In sum, the China-Pakistan strong bilateral bond will continue to be underwritten by several factors which include development of CPEC projects, China’s unremitting support to Pakistan and political, economic & security partnership for the future.

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An abstract graphic consisting of several overlapping, pointed shapes. The shapes are primarily in shades of purple and light blue. One large purple shape is the most prominent, with several smaller blue shapes overlapping it from the left and bottom. The overall composition is dynamic and geometric.

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Iran's Non-Proliferation Commitments and COVID-19: Some Linkages

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Iran has emerged as one of the worst hit COVID-19 countries in the West Asian region. As on 27 April 2020, the death toll due to COVID-19 had surged to 5,806¹ in the country. The outbreak began in the city of Qom, and Iran soon became one of the epicenters of COVID-19 in the region. If media reports are to be believed, “at least six people die every hour in Iran from the pandemic”.² Indeed, Iran seems to have been hit harder by the ongoing pandemic due to the ongoing sanctions. This is evident from the emergency funding of \$5billion³ Iran recently requested from the IMF in order to fight the pandemic. Furthermore, an assessment by the Sheriff University has estimated that if the current situation prevails, it could cost the life of 3.5 million in the country.⁴

Given this context, the calls for lifting sanctions on Iran as a humanitarian gesture have already gained traction. In the US, over 30 Congressional members including Senators Bernie Sanders and Edward J. Markey urged the President to “substantially suspend sanctions”⁵ to fight COVID-19. Already the pandemic has claimed the lives of some top officials in

Iran such as Hossein Sheikholeslam⁶, who was also the former advisor to the current Foreign Minister Javed Zarif, and Mohammad Mirmohammadi⁷ - an Expediency Council member of Iran and one of the advisors to the Supreme Leader.

However, amidst the ongoing crisis, it is imperative that the non-proliferation commitments by Iran do not get sidelined. Attention to them becomes all the more important now because in March 2020, the IAEA Director General, Rafael Grossi raised concerns on Iran's NPT commitments and urged clarification at the earliest. Furthermore, some non-proliferation watchers have even apprehended that any laxity in managing the aspects of the Iranian nuclear non-proliferation commitments due to the outbreak of COVID-19 might enable Iran to cheat on them.

It is to be reiterated here that Iran has come to occupy a significant spotlight in the discussions surrounding the non-proliferation commitments directly related to the NPT. Furthermore, its continued adherence to the terms of the Joint Comprehensive Plan of Action (JCPOA) as

well as to IAEA's Safeguards Agreement – including the Additional Protocol (AP) – remains paramount in ensuring that non-proliferation commitments are in place.

Non-Proliferation Inspections & COVID-19

Iranian non-proliferation commitments under JCPOA as well as those emerging from its Safeguard Agreement with the IAEA are affected by the outbreak of the current pandemic. In both the cases, physical inspections are required in order to ensure complete adherence. More significantly, inspections in the latter case, that require the evaluation of the Safeguard Agreements including the Additional Protocol (AP), could be viewed as urgent because the request is made by IAEA on the basis of recently available information. This is separate from the JCPOA related inspections. However, Iran has refrained from accepting IAEA's demands for special inspection. In January 2020, Iran refused to allow an IAEA official's visit. If the impasse is prolonged it could spell trouble for the non-proliferation regime.

1) NPT Safeguards Agreement

On 03 March 2020, IAEA released two separate reports dealing with Iran's non-proliferation commitments. Report one, titled "NPT Safeguards Agreement with the Islamic Republic of Iran" by the IAEA DG to the IAEA Board of Governors sought

clarifications relating to *'the correctness and completeness of Iran's declarations under its Safeguards Agreement and Additional Protocol'*. Iran being an NPT member is obligated to deliver on its NPT Safeguards Agreement.

The Agency identified few questions in relations to the possibility of *'undeclared nuclear material and nuclear-related activities'* at three separate locations in Iran. Three letters corresponding to each location, along with the geographical coordinates were sent to Iran on 05 July 2019, 09 August 2019 and 21 August 2019, respectively. While the Agency has not elaborated on the specificities, however, the public report highlights that clarifications were sought such as a) whether natural uranium had been used in certain activities at an unspecified location in Iran and the location of such a material b) whether nuclear material had been stored/ used or nuclear activities had been conducted at a location specified by the agency and c) whether Iran had used or stored nuclear material at another location specified by the Agency.⁸ It may be noted that some of the information required by IAEA was in reference to the activities observed earlier in 2019. It is suspected that IAEA may have referred to the information "Israel stole from Iran in 2018 and later shared with the IAEA which could

have details about Iran's past nuclear weapons work"⁹

IAEA has already sent reminder letters to Iran requesting access to the three locations that would clarify aspects relating to Iranian nuclear programme and let the Agency verify that it exists solely for peaceful purposes. One of the letters was sent on January 17, 2020 with subsequent follow-ups, to which Iran had responded on January 28, 2020 that "it will not recognize any allegation on past activities and does not consider itself obliged to respond to such allegations"¹⁰

Following up on this, IAEA further expressed in its reply dated January 31, 2020, that Iran had not satisfied the Agency's requests for clarifications, nor offered other means to resolve the issue. While a meeting in this regard between the Head of Atomic Energy Organization of Iran and the IAEA DG took place in Vienna on February 11, 2020, the matter still remains pending.

Clarifications on these aspects are deemed significant by IAEA as they allow the Agency to resolve any compliance issue. It is to be reiterated that the clarifications sought specifically require environment sampling in geographical locations that might not be declared by Iran in relation to its nuclear programme.

However, under the provisional application of AP the IAEA inspectors are authorised to conduct inspection at places where nuclear materials may not have been declared by a country under the requirement of the AP. The AP provides for "expanded access for inspectors, and allows for greater use of environmental sampling to test for the presence of nuclear materials"¹¹.

In addition to this, the Agency also "has authority to inspect for hidden nuclear weapons-related activities that do not involve nuclear material".¹² It, thus, remains with the IAA's mandate to request for such clarifications. Furthermore, it is to be noted that, while the IAEA's report published in 2015 had already concluded that "Iran had a nuclear weapons program prior to 2003 and no evidence of weaponisation activities after 2009 or any credible indication that nuclear materials had been diverted for those programs was found"¹³, the Agency is still required to further investigate additional evidence of undeclared nuclear activities.

From the Iranian perspective, these requests by the IAEA appear to be politically motivated. The Iranian spokesperson for the Atomic Energy Commission called these verification requests "unprincipled questions and demands by the Agency lacking any legal basis".¹⁴ Iranian Foreign Ministry, too,

maintains that Iran reserves the right to only answer “legal and technical questions, rejecting any politically-tainted attempt by certain regimes to force the IAEA to put Iran under pressure”.¹⁵ Iran feels that the Agency is acting on behalf of information supplied by “spy agencies of Iran’s foes”¹⁶

Iran’s refusal makes it a matter of ‘denial of access’. If unresolved, this would likely disturb the established cordiality between Iran and IAEA. This is important for the smooth functioning of JCPOA, which has already come under strain. Furthermore, the issue gets compounded because two influential members of the IAEA – the US and Russia do not appear to be on the same page on the conduct of inspections based on third party information.

Thus, the emerging tensions between IAEA and Iran point to a deeper issue relating to the manner in which IAEA conducts its inspections and verification. As mentioned before, any tension at the moment between Iran and the Agency does not bode well for the future of JCPOA, which has already come under strain due to the American withdrawal, the P4’s inability to generate economic benefits for Iran, and the subsequent breaches by Iran in a phased manner.

2) *Iran’s Commitments Under the JCPOA*

The second report released by the IAEA on March 03, 2020, titled, “Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231” discusses the implementation of Iran’s nuclear-related commitments under the JCPOA. This report has highlighted that Iran has been “enriching uranium up to 4.5% U-235 and continues to conduct certain enrichment activities that are not in line with its long-term enrichment and R&D enrichment plan specified when the implementation of JCPOA began”.¹⁷ Furthermore, it states that the “total enriched uranium stockpile of Iran has exceeded 300 kg of UF₆ enriched up to 3.67% U-235”.¹⁸ It is important to note that these observations by IAEA were made after Iran’s ultimatum provided on January 05, 2020, that it’s no longer obligated to “restrictions in the operation sphere”¹⁹ under the JCPOA.

Despite this, the IAEA has refrained from presenting an alarming view, and stated in its report that no changes in the implementation of the nuclear related commitments under the JCPOA have been observed. It has also acknowledged that Iran continues to cooperate with the IAEA like before. However, owing to these recent developments, anxiety concerning the “reduction of breakout time for Iran to 3.5

months to develop a nuclear weapon” has surfaced.²⁰ Assumptions that Iran might utilise this time away from the spotlight when the world is fighting other urgent issues for advancing its nuclear programme have entered the narrative.²¹ Some experts worry that “suspending inspections, even temporarily could potentially leave a multi-month gap that could lead Iran to exploit, if it chose to fully break out of the nuclear agreement”.²² While it is not clear whether IAEA has suspended the visits in order to protect the health of its officials, it is plausible to expect such a move, as Iran is severely affected by the pandemic. Given the “depletion of roster of activities for IAEA inspectors”²³ in the current circumstances, the verification of JCPOA appears to be continuing through online surveillance.

As per the latest reports, IAEA has ensured the continuation of on-site inspections and monitoring activities in Iran despite the pandemic. But it is not clear whether this includes physical inspections too. While Tariq Rauf, in a recent piece for Bulletin of Atomic Scientists, highlighted that “all IAEA operations including safeguard inspections continue amidst COVID-19 but it is also pointed out that travel disruptions and in-person, on-site agency inspections may suffer some possible disruption”²⁴. IAEA is mandated to report quarterly on the JCPOA

implementation; should it choose online monitoring as the basis of reports or is presence of inspectors on the ground mandatory? There is a lack of clarity on this.

Managing the effective implementation of the JCPOA under the current times with US-Iran, Iran- IAEA, US-Russia differences is a difficult proposition. Any disruptions in the commitments of JCPOA under the backdrop of heightened friction between the US and Iran can raise false alarms and might cause unwanted damage to the JCPOA.

Can COVID-19 Prompt a Détente?

The current pandemic is an exceptional situation that calls for exceptional responses. The rate of outbreak has caught even the most robust economy off-guard. This calls for inclusion of a humanitarian approach even more, especially towards a country that is already under years of stringent economic pressure. The times of COVID-19 can be used as an opportunity to offer détente to Iran for a limited period by easing sanctions. The calls for lifting sanctions in the current times include allowing Iran to “sell oil on the international market to purchase medical and other supplies needed to fend off the virulent epidemic”. IAEA is already engaged in sending out diagnostic

machines and kits to more than 40 countries including Iran²⁵ to combat the spread of COVID-19. Can IAEA do more? In case some more helpful humanitarian actions can be taken, it would have the potential to positively impact the IAEA-Iran stand-off by reducing the animosity between the parties and also enable Iran to change its hard narrative. Finally, one can only hope that cooperation may breed cooperation. If there is time to bring US closer to Iran and Iran closer to non-proliferation, this is it.

Notes

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Nuclear Energy in Times of COVID-19

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The COVID-19 coronavirus is having a tremendous impact on the world. Having spread to more than 185 countries, it has not only killed more than 2 lakh people, but affected more than 30 lakh worldwide, and led to the rest of the population to self-quarantining themselves. It has also triggered a severe economic crisis and social disruption. Declared a pandemic by the World Health Organization, we are dealing with a crisis of a global scale. And, although, pandemics have happened in the past, the reality of dealing with it today is much different from before, as almost every aspect of a modern person's life is digitised today, whether it is travelling or paying bills, leisure activities or operation of critical infrastructure. We currently live in an era where societies are driven by technology, most of which is powered by electricity.

The importance to keep the power supply on now is felt more than ever, since hospitals have been working beyond their capacity to deal with the increasing number of patients. Ventilators and monitors cannot afford to go off even momentarily. Similarly, electricity is also important to ensure the continuity of

banking services, businesses, etc. which are crucially contributing to the economy, at a time when a financial and economic crisis is looming large. The whole world is adapting to this crisis: business companies have their employees teleworking, schools have been organizing classes online, and political and corporate meetings are taking place through video-conferences. It is reliable supply of electricity that is enabling these adaptations.

Amongst the baseload sources of electricity, nuclear power has yet again shown its relevance in times like this. However, like in all cases, the nuclear power plants too have had to adapt some of their processes in keeping with the demand of physical distancing. While there is a huge amount of automation in nuclear power plants, the presence of humans in command centres is nevertheless a necessity for safe operations. Nuclear power utilities around the world are therefore trying to adapt themselves to deal with this challenge effectively.

Contingency Plans

High safety culture and emergency preparedness is the linchpin of the nuclear

power industry. Nuclear power utilities already have contingency plans in place for many kinds of disasters, including pandemics. For example, the French utility company, Électricité de France (EDF) has a Pandemic Plan since 2009. EDF claims that in worse case scenarios it is equipped to ensure continuation of electricity generation for twelve weeks through its pandemic plan. Fortunately, it hasn't yet had to initiate this plan.¹ However, on March 23, EDF stated that it would be decreasing its previously set target of producing 275-390 TWh of nuclear production, due to production disruption that is caused with having its workers stay away from the worksite.²

The Director - General of the Russian Rosatom State Nuclear Energy Corporation (Rosatom) too has expressed the preparedness of his nuclear enterprise. He stated that additional measures had been taken not just at all the nuclear power plants in Russia, but also at plant construction sites. Rosatom has also envisaged several scenarios that could occur due to the novel Corona virus outbreak that would impact their workers and has developed a number of contingency plans depending on how events unfold.³

In Belgium, Electrabel SA, an energy corporation, has developed a Corona

Action Plan. This plan enables an arrangement of teleworking for staff members whose functions allow it, while ensuring that there is sufficient staff to carry out the critical activities at nuclear power plants. It has also taken several other precautionary measures such as postponement of non-urgent maintenance activities, increasing sanitization of the workplace, providing access to disinfectants and medical services etc.⁴ Fortum's Loviisa nuclear power plant in Finland, too has preparedness plans in place.⁵ As is evident, therefore, nuclear plant operators in general have a high level of preparedness to handle the emergency.

Promoting Remote Working

Most nuclear power utilities are encouraging remote working, having only the critical staff workers, such as those involved with operation, maintenance and security asked to go to the work site. The spokesperson for US Nuclear Regulatory Commission, Scott Burnell said that about 75% of their workforce is already prepared to work remotely.⁶ Neil Sheehan, spokesman of Region 1 of the NRC, which oversees NextEra Energy Seabrook nuclear power plant stated that their employees are able to access materials, monitoring and communication technology to ensure safe operations of the country's nuclear power plants and other related

businesses.⁷ EDF Energy of France too has reduced its workforce by over 50% at the Hinkey Point C nuclear power plant. Many nuclear power plant authorities around the world have followed suit.

Increased Sanitation

Another important aspect these utilities have been promoting is increased sanitation, by disinfecting the work places often. For example, RWE AG, one of Germany's largest utility companies has been disinfecting radiation meters that are used by the employees on a regular basis.⁸ Similarly, tools are being disinfected at the Plant Vogtle in Georgia, in addition to the other safety measures adopted by the authorities.⁹

Safety Measures

Other approaches adopted by nuclear power utilities for increased safety and social distancing among their staff includes staggering staff meal breaks, regular health check-ups of personnel, increased sanitisation of workplaces, temperature checks of people entering the site, suspension of business travel, alternate using of facilities, no-visitor policy, etc. In the United States, Maria Korsnick, president of the Nuclear Energy Institute stated that that some operating reactors are even “considering measures to isolate a core group to run the plant, stockpiling

ready-to-eat meals and disposable tableware, laundry supplies and personal care items.”¹⁰

Application of Nuclear Technology in Combating Covid19

In addition, nuclear technology is also being used directly to help in combating the corona virus through a nuclear derived technique, called the real time reverse transcription–polymerase chain reaction (real time RT-PCR). This technique enables the detection of coronavirus. Along with providing training on using this technology, the International Atomic Energy Agency (IAEA) has also dispatched these diagnostic kits and equipment to over forty countries.¹¹ Other uses of nuclear technology in this regard is the production of cobalt-60, an artificial radioisotope produced in a nuclear reactor, which can be used in the sterilisation of medical equipment. In this regard, countries like China have used their industrial irradiation facilities to handle disinfection and sterilization of medical supplies.

Temporary Halt in Operations

Operations have been halted in a few facilities where it was deemed important. Placing utmost importance on safety, Ho Nieh, director of the NRC’s Office of Nuclear Reactor Regulation stated that if a facility was incapable to meet regulatory

requirements, the NRC had “a variety of mechanisms to consider,” including plant closures. Examples of this include the Magnox reprocessing plant which is undergoing a controlled shutdown. After an employee tested positive for Covid 19, over 8% of their staff began self-isolating to prevent the spread of the virus. Officials stated that “as a proactive measure, to retain the reprocessing stream in a sustainable state for the future, we are moving to a controlled shutdown of the Magnox reprocessing plant over the next few days...This approach will enable the best opportunity for an effective restart when circumstances permit. With safety in mind, similar measures may be necessary elsewhere across the business.”¹² Production has also been temporarily discontinued at the Cigar Lake uranium mine in Canada. In addition, to ensure social distancing, the onsite workforce has been reduced from 300 workers to just 35.¹³ Uranium production at Cigar Lake uranium mine in Canada has also been suspended as the facility has been put under safe care and maintenance mode. Similarly, Orano Canada, a uranium mining, milling, and exploration company, where the ore from Cigar Lake is processed, has also halted operations. Operations at the La Hague reprocessing plant in France have also been temporarily put off, to protect

employees, while only critical activities continue.

Conclusion

The Corona virus outbreak is proving that the nuclear industry is equipped to face novel and challenging operating conditions, as most nuclear power utilities continue to perform their critical missions. It is during times of such crises that we recognise more unsung heroes. The workers at these nuclear power facilities deserve credit for putting themselves at risk to ensure that the reactors are running, which has been tremendously helpful in ensuring uninterrupted availability of electricity.

Culture of preparedness and high safety is the hallmark of the nuclear industry. This trait automatically comes into play during pandemics. All nuclear power plants have emergency plans in place, which not only act as an additional layer of protection during an emergency but also provide a plan of action during crisis situations. This is being evinced during the ongoing corona virus. The sector appears to be well prepared having contingency plans in place. Covering a wide realm of issues, such as accidents, terror attacks, natural calamities etc, these emergency plans keep getting revised. For example, the preparedness to deal with this Covid-19 stems from having experienced

the SARS outbreak in 2003, which gave the power utilities some experience in preparing ahead in case of another such crisis.

Another characteristic trait of the nuclear industry is pro-activeness, which was displayed with the planned emergency exercise that was conducted from 24th to 26th March 2020. Organised by the IAEA, this exercise was partaken by 35 countries and two Regional Specialised Meteorological Centres of the World Meteorological Organization. The exercise focused on dealing with various emergency scenarios, including operations during a pandemic such as the ongoing one. IAEA Director General Rafael Mariano Grossi, who chaired a mid-exercise meeting of the Incident and Emergency System Steering Group, stated: "We need to be prepared for the possibility that nuclear and radiological emergencies resulting from a safety or security event could be accompanied by natural disasters, pandemics or other crises." He said that conducting the exercise during the coronavirus crisis demonstrates the IAEA's determination to maintain its emergency response capability. "Regardless of the causes and circumstances of any crisis, the IAEA will act quickly to coordinate an effective international response."¹⁴

Indeed, amidst this grim and unfortunate situation, the nuclear industry has shown its proficiency as a clean and reliable energy source. Its high capacity factor, in addition to the need for refuelling only once in one or one and a half years ensures security of supply and low maintenance requirements. The current crisis yet again highlights the importance of making right power choices.

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Nuclear Non-Proliferation and Disarmament in Times of the Pandemic

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The 2020 coronavirus pandemic has caused a severe global disruption. Dealing with the pandemic has consumed energies of all nations over the last few months. It is said to have originated from the Wuhan province of China in December last year, and due to its severity has been declared by the World Health Organisation as a Public Health Emergency of International Concern on 30 January, and a pandemic on 11 March. As of 29 April 2020, more than 3.11 million cases of COVID-19 had been reported in 185 countries and territories, resulting in more than 217,000 deaths¹. As a result of this, many existing challenges posed by nuclear weapons seemed to have been put on the back burner.

Amongst the many casualties of Covid 19 was the scheduled conduct of the Nuclear Non-Proliferation Treaty (NPT) RevCon, which would have marked the 50th anniversary of the treaty since its entry into force. The treaty is viewed as the foundation of the global endeavors towards exploitation of peaceful use of nuclear energy, non-proliferation and disarmament of nuclear weapons. Abiding by Article VIII.3 of the NPT that states, “Five years

after the entry into force of this Treaty, a conference of Parties to the Treaty shall be heldin order to review the operation of this Treaty...”, the first review conference was held in the year 1975. Since then the committee decided to conduct quinquennial reviews in the form of RevCons every preceding five years. This year’s RevCon was to be the tenth in a series of such quinquennial NPT Rev Cons. Though its journey towards the goal of nuclear disarmament has not yielded much success, the NPT has survived many crises and has contributed to curbing horizontal proliferation of nuclear weapons even though the recognized five nuclear weapon states (NWS) or the P5 the US, Russia, the UK, France and China have continued to expand their respective arsenals without any constraints.

Though this year’s NPT Rev Con was an extremely important event, it had to be postponed till 2021 due to the unexpected turn of events created by the outbreak of this pandemic. According to the decision makers, an yearlong gap would not only provide enough time for the COVID 19 to subside, but it might also have a prospect of developing a COVID 19 vaccine. On the

other hand, other uncertainties related to international travel and global economy might also settle down during the given year. The April 2021 RevCon will be convened at Vienna.

The reasons for NPT Review Conference 2021 to be convened at Vienna, the capital of Austria, instead of in New York is because, Vienna is the headquarters of the International Atomic Energy Agency (IAEA)², which has been responsible for two of the three “pillars” of the NPT – nuclear verification (safeguards) security and safety, as well as the peaceful applications of nuclear technology. This city has also successfully hosted the first preparatory committee session of the series of quinquennial NPT review conferences since 2007, while the second PrepComs are hosted in Geneva and the third in New York. Additionally, the headquarter of Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) as well as the United Nations Office for Disarmament Affairs (UNODA) are also located in Vienna. Given this, Vienna is well equipped from a Secretariat perspective to host an NPT review conference. Besides, in comparison to the US, the food, lodging and travel expenses are way cheaper in Vienna. Furthermore, complaints from Russian and Iranian delegates about denials of visa by the American authorities during this year’s UN Disarmament Commission also

contributed towards the decision of the venue change.

What to Expect from the 2021 NPT RevCon?

Given the increasing rift between nuclear armed states who vouch for nuclear deterrence and the many non-nuclear states who pledge for absolute disarmament of nuclear weapons, 2021’s NPT Rev Con will be a crucial one. It is not clear as to how the two would reconcile their positions. Meanwhile, there are also glaring rifts amongst the NWS. Lack of a shared vision will impact the conference. While efforts must be made by the NWS to preserve and strengthen the NPT so that it can provide an essential foundation for the prevention of further proliferation and realize its actual goal of absolute elimination, this looks difficult. Will the NPT crumble under extensive pressure as there might be a blame game on the state of nuclear arms control since the last RevCon? While such a situation may not come to pass – since many nations still see a stake in the continuance of the NPT – unless nations begin to build a habit of cooperation, a secure future for arms control and non-proliferation cannot be ascertained.

Covid 19 prompted the deferment of the NPT RevCon, but the period of the

pandemic saw certain good news on the Treaty on Prohibition of Nuclear Weapons. In this regard, on 23 January 2020, Paraguay submitted its instrument of ratification, becoming the 35th state party to ratify the landmark treaty which puts an unmitigated restriction on nuclear weapons and has been touted by the member signatories as a pathway to their absolute elimination. On 20th March 2020, Namibia became the 36th nation to ratify it. Meanwhile, Belize, a country that had promoted universal adherence to the treaty by voting for its adoption in 2017 and by co-sponsoring a UN General Assembly resolution in 2019 that called upon all states to sign, ratify, or accede to the treaty “at the earliest possible date”, signed the TPNW on 6th of February, 2020. It is yet to ratify it³.

Meanwhile, owing to the outbreak of the pandemic, the second round of Working Group meetings and the second Informal Preparatory Meeting of the Sixth Conference of States Parties to the Arms Trade Treaty which was supposed to take place from 14th to 17th April 2020 in Geneva, had to also be cancelled.

Meanwhile, on the general arms control front, the US and Russia appear to be backing away from bilateral treaties that had prevented nuclear arms racing. New START, the sole remaining nuclear arms

control treaty between the United States and Russia, is likely to expire in February 2021⁴. This follows the collapse of the Intermediate-Range Nuclear Forces Treaty (INF) after reports that Russia had violated it for several years. The Trump administration argues that China should join nuclear arms control treaties, including New START. China is not interested. If that prompts the United States to abandon New START, the Americans and Russians could begin a nuclear arms race. If New START is not extended, it will be a collapse of arms control in its current form. Combined with more dangerous weapons deployments and the Trump administration’s worst case assumptions of Russian and Chinese nuclear strategy, the major powers could easily stumble into dangerous misunderstandings.

What Lessons should Humankind learn?

The first quarter of 2020 has not gone very well from the disarmament point of view, due to increasing emphasis on the centrality of deterrence by arch rivals. On the other hand, the cancellation of the most significant nuclear conferences due to the COVID 19 outbreak augur a bleak picture. However, if we view nuclear weapons through the lens of the COVID 19, we might realize that if humanity can globally put in such tremendous efforts to slow down the

pandemic and protect our future, then why can't we do the same with nuclear weapons that can destroy everything and everybody until the end of time? Of the four great threats to humanity including pandemics, climate, inequality, nuclear weapons, the last one is the most dangerous and it is high time the world makes an effort to strike it off from the list of threats. All that's needed to end this 75-year-old nightmare is political will.

Perhaps, like every cloud this pandemic too might have its own silver lining. It is helping humanity rediscover its core values. The fight against this pandemic is showing us that anything unthinkable is possible. It also shows up the need for collective effort to be directed towards finding the right kind of solutions. It gives us a clear message that a most difficult situation could be overcome only if we forget the "us vs them" divide and focus more on the "us vs disaster". The earlier we understand this and implement it against nuclear weapons too, the safer we will be.

Notes

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