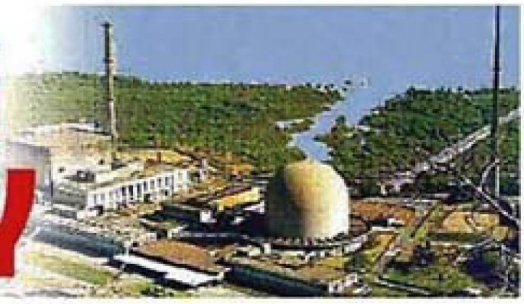
NUCLEAR SECURITY



A FORTNIGHTLY NEWSLETTER ON NUCLEAR DEFENCE, ENERGY AND PROLIFERATION FROM CENTRE FOR AIR POWER STUDIES

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OPINION - Manpreet Sethi

The Good, the Bad, and the Ugly in India-China Nuclear Relations

India-China nuclear relations are unique and complex. China refuses to recognise India as a nuclear weapons state (NWS), though there is no denying the reality of India's nuclear weapons. In fact, this has been accepted by the international community as illustrated by India's accommodation into the non-proliferation regime. So, China's objections to India's nuclear status is a political issue. However, the geopolitical circumstances of the two countries—conjoined by geography and separated by historically incomplete border demarcations—add a risky dimension to their existence as nuclear neighbours. Unresolved territorial disputes result in frequent border skirmishes that have the potential to escalate.

It is therefore in the interest of both to acknowledge the nuclear relationship and find ways to address risks. Can they do so? The answer to this question lies in understanding the good, bad, and ugly dimensions that simultaneously characterise this relationship.

The good in India-China relations can be seen in the sense of nuclear stability that both countries are able to engender despite tensions created by territorial issues. This is evident in the current military stand-off that has been ongoing for almost six months now. Yet, neither has drawn attention to their nuclear weapons despite the unprecedented violence that broke out at the Line of Actual Control (LAC) in June 2020.

The good in India-China relations can be seen in the sense of nuclear stability that both countries are able to engender despite tensions created by territorial issues. This is evident in the current military stand-off that has been ongoing for almost six months now. Yet, neither has drawn attention to their nuclear weapons despite the unprecedented violence that broke out at the Line of Actual Control (LAC) in June 2020, in which both sides lost lives for the first time in decades. Considering this as a serious inflection point, New Delhi has decided to significantly scale-down its economic engagement with China, fast-track conventional capability build-up, strengthen partnerships with other like-

minded countries (fortunately there are many that have been rankled by China's aggressive posture), and re-examine positions on Tibet, Taiwan, and the Quad.

Are any ripple effects expected on either side's nuclear positions? It does not seem so. India has not announced any changes to its nuclear positions, though the suggestion of changing to a more offensive nuclear strategy owing to the conventional asymmetry with China has surfaced. However, policy changes are not deemed to be warranted given the understanding that it makes little sense to use nuclear weapons first in situations where the adversary has a secure second-strike capability. It could only lead to nuclear escalation by inviting similar retaliation without necessarily making a dent in the adversary's conventional conflict.

Debates in China about increasing nuclear numbers, revising alert levels or NFU, and deploying hypersonics or dual-use missiles are aimed at enhancing nuclear deterrence vis-a-vis the US. India does not figure in these calculations.

Meanwhile, for China, changes in its nuclear capability and strategy are driven by its threat perception from the US. Its nuclear modernisation is in response to US ballistic missile defence and long-range conventional strikes that are seen to have the ability to degrade Beijing's nuclear retaliatory capability. Debates in China about increasing nuclear numbers, revising alert levels or NFU, and deploying hypersonics or dual-use missiles are aimed at enhancing nuclear deterrence vis-a-vis the US. India does not figure in these calculations.

The officially declared Indian and Chinese NFUs, as well as a similarity in their approach towards nuclear weapons as instruments of deterrence and not war-fighting, have helped maintain a sense of nuclear stability while dialogue mechanisms try to resolve the ongoing impasse diplomatically. In fact, their nuclear behaviour is a practical demonstration of the value of NFU in adversarial nuclear dyads. It is a good example of a risk reduction measure worthy of emulation by other dyads.

The bad dimension of the India-China nuclear relationship can be found in the huge perception gap on nuclear motivations and threat perceptions, exacerbated by a largely blind acceptance of Western analysis and writings about each other. For instance, the recently released US Department of Defense (DoD) report on China's military and strategic developments, which predicts significant nuclear growth in numbers and capabilities, has caused much concern in India. However, India's sense of alarm needs to be tempered by the appreciation that there could be an inflation of the Chinese threat by the US for its own budgetary battles. Similarly, on the Chinese side, too, there is a tendency to echo Western scholars who perceive India's nuclear weapons from the prism of prestige and status, and hence believe an inevitable technological progression towards counterforce capabilities and increased numbers. Given the West's lack of understanding of the NFU's military logic, many cast doubts on India's continuing adherence to it.

India's sense of alarm needs to be tempered by the appreciation that there could be an inflation of the Chinese threat by the US for its own budgetary battles. Similarly, on the Chinese side, too, there is a tendency to echo Western scholars who perceive India's nuclear weapons from the prism of prestige and status, and hence believe an inevitable technological progression towards counterforce capabilities.

A tendency to rely on such Western writings to learn about each other's nuclear positions and perspectives creates room for misunderstanding and worst-case thinking between China and India. This is ironic because both sides in fact are consonant in several ways on nuclear philosophy. New Delhi and Beijing must have direct, bilateral dialogues on nuclear doctrines, force structures, and postures. The risks are only growing with the induction of new technologies, and China needs to get over its outdated attitude so meaningful engagement on nuclear issues can take place.

Inadvertent escalation in future stand-offs will not be in either's interest.

Finally, the ugly dimension of this relationship is found in China-Pakistan nuclear and missile proliferation. Knowledge of China's material help to Pakistan is well-known. However, Chinese psychological and moral support to Pakistan's use of terrorism is less understood. For instance, the larger international community has called out Pakistan for its support to terrorism, as evident in Pakistan having stayed on the Financial Action Task Force (FATF) grey list for so long. China, however, still continues to extend economic, political, and moral protection. This has not allowed or incentivised Rawalpindi to change its behaviour. By acting as benefactor towards Pakistan's irresponsible nuclear behaviour, China helps create an ugly instability in the triangular relationship.

There is much in the India-China nuclear relationship that can be useful—bilaterally, regionally, and globally. These are the only two countries that offer an alternate perspective on nuclear weapons and deterrence, and demonstration of concepts such as NFU and low alert levels. Both eschew limited nuclear war. It will be a pity if they, too, are compelled by circumstances and misperceptions to sway from their sane nuclear policies of minimalism and defensiveness.

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Source: http://ipcs.org/comm_select.php?articleNo=5734, 27 October 2020.

OPINION - Hina Pandey

Assessing North Korea's Nuclear Resolve in the Times of COVID-19

Has COVID-19 deterred North Korea's nuclear resolve? The short answer to this would be No. In fact, after the recent October 10 pre-dawn military parade that unveiled a new ICBM, the North Korean message is clear: Pyongyang intends to advance its nuclear/missile capabilities in the face of sanctions pressure.

The recent show of strength by North Korea is not a surprise if one observes its nuclear posturing from January-August 2020. While the COVID-19 pandemic has presented itself as a security challenge on both traditional as well as non-traditional fronts, North Korea has projected its indifference towards this unprecedented threat by downplaying the pandemic and not letting it affect the country's nuclear posturing.

As the world continues to absorb and normalize the shock of COVID-19, flatten the infection curve, and move forward toward a post COVID era, North Korea has taken a different approach.

First, Pyongyang has attempted to project successful containment of the pandemic and that it is COVID-19 free. Second, Pyongyang has attempted to convey nuclear deterrence and resolve to the world, and especially to the U.S., through images of progress in its nuclear weapons capability.

Effects of COVID-19 on Global Security Priorities: The novel coronavirus has affected state security in both traditional and non-traditional ways. Traditionally, the pandemic has done so by making one of the primary elements of state power- the population, physically vulnerable. In the non-traditional sense, it has crossed the boundaries of health, economy and politics to gravely impact the psychological and economic dimensions of affected countries and regions.

This black swan event has further challenged orthodoxies related to operation of the daily affairs of the world. In the domain of foreign policy it has pushed diplomacy to a virtual mode, albeit temporarily. And it has reshaped national security conversations by rightfully elevating the prominence of health and economy in the discussions.

Contrast: North Korean Priorities: During all these months, North Korea's focus on projecting its intention to advance the country's nuclear capability has remained evident. Specifically, on three occasions the Kim Jong regime has made it clear that their nuclear capability is here to stay and any future negotiations on denuclearization would likely be a non-starter unless their conditions on U.S. agreement to 'corresponding measures' are met.

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Most recently, during the May meeting of the Central Military Commission, the supreme leader "...vowed to increase country's nuclear deterrence...". Additionally on two other occasions, North Korean officials including Kim Kye Gwan and Ju Yong Chol have rejected any potential talks with the U.S.

It is to be noted that, in the month of March, North Korea conducted the most missile tests in a single month since the 2017 nuclear crisis. This is of great significance as it also demonstrated North Korea's withdrawal from the voluntary moratorium on nuclear testing for the second time. The first time was in 2019.

While North Korea has used anniversary days to showcase its military strength in the past, this event remains significant for two reasons. First, it is a signal to the upcoming administration in the U.S. to take note of an unresolved nuclear conundrum. And second, it is a signal to the international community that Pyongyang's nuclear resolve stands robust amidst the COVID-19 pandemic.

Some North Korea watchers had already predicted last year that Pyongyang would most likely invest in improving its nuclear and ballistic missile capabilities in the coming year (2020). Indeed, this was demonstrated by Pyongyang. It is noteworthy that since January 2020, Pyongyang has continued development of its ballistic missile program at a rapid pace, and the intervals between missile launches have also been reduced.

All of the missiles tested by North Korea during the pandemic have been small, short-range weapons. Furthermore, experts believe that albeit small, "...these short-range tests provide strong evidence that North Korea is making consistent improvements...". In addition, a United Nations report covering the period February 8 to August 3, 2020, has reiterated the same. As per the media reports citing the recently released UN report, "...North Korea can now miniaturize its nuclear weapons sufficiently to put them on missiles..." It must be reckoned that these small developments have taken place while North Korea remained under stringent sanctions.

October 10 Party Foundation Day Parade: It is noteworthy that speculation about the possible test of an ICBM or SLBM before the October 10 parade had gained prominence since last year. It was expected that North Korea would showcase its nuclear or missile capability close to the event marking the 75th anniversary of the Workers Party of Korea, specifically "the Pukgugksong-3 SLBM or reveal indigenously-produced ICBM transporter-erector-launchers (TELs), and/or a new ICBM".

Interestingly, during its October 10 parade North Korea unveiled a never before seen ICBM and an 11-axle missile launcher, in addition to the expected Hawsaong-15 missile.

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Slim Prospects for Progress: In any case, the North Korean nuclear issue remains significant for the upcoming U.S. Administration. Since the Hanoi talks failed, much time seems to have been lost that could have been used to revive U.S.-North Korean nuclear diplomacy. In contrast, the Trump Administration's approach to nuclear diplomacy vis-a-vis North Korea centered on personalizing the issue.

However, the chances of any chemistry between the two heads of state can be effectively ruled out if the Biden-Harris team wins the election, as Biden himself has referred to such meetings as a "vanity project". Once again, some delay can be expected in resumption of the U.S.-North Korea dialogue.

Even if it is willing to engage with North Korea, a new U.S. administration would have to reassess its approach. However, based on presidential candidate Biden's statements, direct engagement appears somewhat less likely as his aides have said that Biden "would not meet with Kim unless unspecified preconditions are met".

It remains to be seen whether such a prospect can take place in the absence of U.S.-North Korean diplomacy in the next Administration. The future of US-North Korea nuclear diplomacy thus appears likely to return to the slow and challenging approach of the pre-Trump era if Biden is elected president.

Additionally for Japan, resolution of the nuclear conundrum has remained an important issue as it figures directly into the Japanese threat perception. The larger goal of denuclearization thus favors Japan's objective of regional stability. Mitigation (if not complete removal) of the nuclear irritant by a possible freeze on nuclear-missile tests by North Korea would add to the prospects of normalization of their bilateral relations.

In-fact the normalization of bilateral relations with North Korea has been an unchanging goal for Japan, as former PM Shinzo Abe reiterated while addressing the 74th UNGA meeting in 2019. It was Abe, who called out for a 'new start' and even indicated his willingness to meet with the North Korean leader directly. This opportunity exists for the Suga Administration too, as he has said he intends to make a "breakthrough over the long-standing abduction issue". However, it remains to be seen whether such a prospect can take place in the absence of U.S.-North Korean diplomacy in the next Administration. The future of US-North Korea nuclear diplomacy thus appears likely to return to the slow and challenging approach of the pre-Trump era if Biden is elected president.

Source: https://japan-forward.com/assessing-north-koreas-nuclear-resolve-in-the-times-of-covid-19/, 12 October 2020.

OPINION - Sergio Duarte

Soon Nuclear Weapons will be Prohibited

The 50th instrument of ratification of the Treaty on the Prohibition of Nuclear Weapons (TPNW) was deposited on October 24 – coinciding with the 75th anniversary of the United Nations Charter. In accordance with its Article 15, the Treaty will enter automatically into force 90 days after that date. When in force, the TPNW will become part of the *corpus* of positive international law as the first multilateral agreement that comprehensively prohibits nuclear weapons and also addresses the humanitarian consequences of nuclear weapon use and testing, including assistance to victims. Besides, it is the first treaty that explicitly forbids its members from hosting nuclear weapons belonging to other states.

Efforts to develop an effective multilateral instrument to directly outlaw nuclear weapons spans several decades. In 1997 Costa Rica submitted a model nuclear weapons convention, later updated in 2007. In 2005 and 2006 proposals for the beginning of multilateral negotiations on a convention banning nuclear weapons were renewed without success. Former UN Secretary-General Ban Ki-Moon's 2008 five-point plan for nuclear disarmament included support for a nuclear weapons convention.

The Final Document of the 2010 Review Conference of the NPT expressed deep concern

at the catastrophic humanitarian consequences of any use of nuclear weapons and stressed the need for all states at all times to comply with applicable international law, including international humanitarian law. In December of that year, the UN General Assembly adopted Resolution 65/59 entitled "Towards a nuclear-weapon-free world: Accelerating the implementation of nuclear disarmament commitments". Three international conferences on the humanitarian impact of nuclear weapons were held in 2013 and 2014. Under Article 11 of the Charter the General Assembly is entitled to consider and make recommendations with regard to, *inter alia*, "the principles governing disarmament and the regulation of armaments". Its decisions are taken by a majority of votes. From 2012 on, a number of non-nuclear-weapon states, supported by dedicated civil society organizations, took upon themselves the task of stimulating debate at the General Assembly and other forums on means to take forward multilateral disarmament negotiations.

The reason why the "step by step approach" is so far seen by so many as having failed to produce results is that for 50 years no such progressive steps directly targeted and organically linked to the achievement of specific NPT disarmament obligations were ever actually taken.

The failure of the 2015 Review Conference of the NPT to adopt a Final Document strengthened the resolve to search for innovative ways to achieve progress in those negotiations. As a result, on December 15 of the same year, the Assembly adopted Resolution 70/33 that decided to convene an open-ended working group "to substantively address concrete effective legal measures, legal provisions and norms that will need to be concluded to attain and maintain a world without nuclear weapons". Upon the Working Group's recommendation, the landmark General Assembly Resolution 71/258 decided on the convening of a United Nations Conference to "negotiate a legally binding instrument to prohibit nuclear weapons, leading towards their total elimination".

From the beginning, the nuclear-weapon states rejected such moves and reiterated their conviction that nuclear disarmament – in their view a long term, ultimate objective – could only be achieved through a step-by-step process that took into account the security situation in the world as well as their own security concerns.

At the 2015 NPT review conference, these countries stated: "We reaffirm the shared goal of nuclear disarmament and general and complete disarmament as referenced in the preamble and provided for in Article VI of the NPT," and added that "We continue to believe that an incremental, step-by-step approach is the only practical option for making progress towards nuclear disarmament while upholding global strategic security and stability."

The reason why the "step by step approach" is so far seen by so many as having failed to produce results is that for 50 years no such progressive steps directly targeted and organically linked to the achievement of specific NPT disarmament obligations were ever actually taken.

However, the nuclear-weapon states and nearly all their allies chose not to bring their concerns and possible suggestions – including as to what those steps might consist of – to the Open-ended Working Group. They later also chose to shun the negotiations on the legally binding instrument that were carried out in 2017 in accordance with Resolution 71/258 by 122 States under the chairmanship of Ambassador Elayne Whyte-Gómez of Costa Rica. Only the Netherlands, a member of the NATO was present at the debates, where it argued its view that the proposed prohibition treaty was incompatible with the Organization's concept and doctrine of nuclear deterrence. After approximately two months of deliberations the Treaty on the Prohibition of Nuclear Weapons, leading to their elimination (TPNW), was finally adopted on July 7, 2017, and opened for signature on September 20 of that year.

Upon the adoption of the TPNW, a number of arguments were made by nuclear-weapon States in opposition to the Treaty. The five NPT nuclear-weapon States formally declared that "accession to the ban treaty is incompatible with the policy

of nuclear deterrence, which has been essential to keeping the peace in Europe and North Asia for over 70 years".

As this reasoning goes, nuclear deterrence is essential to keep the peace and hence so are nuclear weapons, with whose permanence nuclear disarmament is of course incompatible. Therefore, nuclear disarmament – not nuclear weapons – is seen as a threat to the maintenance of peace.

Nuclear weapons are already illegal for the 191 non-nuclear members of the NPT and their use has been found to be contrary to the rules of international law in armed conflict, and in particular to the principles and rules of humanitarian law. Furthermore, doctrines based on the threat of annihilation of millions of innocent lives and that risk the extinction of human civilization can hardly be called legitimate.

The foreign minister of Japan – the only country ever to suffer an attack with nuclear weapons – also showed concern with the adoption of the TPNW when he stated that "participating in a treaty that immediately makes nuclear weapons illegal will undermine the legitimacy of nuclear deterrence".

In fact, nuclear weapons are already illegal for the 191 non-nuclear members of the NPT and their use has been found to be contrary to the rules of international law in armed conflict, and in particular to the principles and rules of humanitarian law. Furthermore, doctrines based on the threat of annihilation of millions of innocent lives and that risk the extinction of human civilization can hardly be called legitimate.

The Treaty's conscientious rejection of nuclear weapons draws its strength from the common sense notion that their use would have unacceptable consequences and that a world free from such weapons is the best guarantee against that possibility. Reliance on deterrence means accepting to live under the constant threat of a nuclear conflagration and even more so in view of recent developments in nuclear weaponry that make their use more likely, not to mention the increasingly hostile attitudes of nuclear-armed states toward each other. Advanced technologies and capabilities – such as hypersonic missiles, undetectable underwater drones, disabling cyberattacks on infrastructures, disruption of satellite communications and aggressive use of biotechnology, to name just a few – suggest that the actual hostile use of such novel means of warfare could set off an unpredictable escalatory sequence.

Such possibilities are clearly being taken seriously: recently, Russia warned that any ballistic missile launched at its territory would be perceived as a nuclear attack that warrants a nuclear retaliation in kind. For its part, the United States' Nuclear Posture contemplates the use of nuclear weapons against perceived non-nuclear threats to its security.

The argument that the TPNW would exacerbate political tensions on disarmament by "creating divisions" conveniently overlooks that it was actually the NPT that formally instituted the division of the world between possessors and non-possessors of nuclear weapons in the first place.

After the TPNW's adoption in 2017, NATO stated, *inter alia*: "Seeking to ban nuclear weapons through a treaty that will not engage any state actually possessing nuclear weapons will not be effective, will not reduce nuclear arsenals, and will neither enhance any country's security, nor international peace and stability. Indeed, it risks doing the opposite by creating divisions and divergences at a time when a unified approach to proliferation and security threats is required more than ever".

The argument that the TPNW would exacerbate political tensions on disarmament by "creating divisions" conveniently overlooks that it was actually the NPT that formally instituted the division of the world between possessors and non-

possessors of nuclear weapons in the first place. That argument also ignores that nuclear-weapon States act implicitly, particularly after the NPT's indefinite extension, as if that division is meant to be maintained in perpetuity, thus creating uncertainty and raising tensions within the membership of the latter Treaty. The continued refusal by the nuclear-weapon states to acknowledge and act on the need for urgent, legally binding and time-bound measures of nuclear disarmament increases frustration and fosters further divisions.

The NATO statement is nonetheless right in that the TPNW will not *per se* produce reductions in nuclear arsenals. Neither can it magically ensure nuclear disarmament, which of course requires possessor States to engage in good faith with the remainder of the international community. Obviously, the new Treaty will only be fully effective when all nuclear weapons have been irreversibly dismantled and adequate verification procedures are developed and put in place.

This will take hard work, creativity and patience as well as political will, but it is a legitimate and universally-pursued goal ever since nuclear weapons, as well as other weapons of mass destruction, came into being. The objective of prohibiting them was already present in the very first resolution of the General Assembly, unanimously adopted in 1946. Since then it has been possible to outlaw two categories of weapons of mass destruction – bacteriological (biological) and chemical – through the perseverance and cooperation of all nations and with the encouragement of civil society. Seventy-five years after their appearance, nuclear weapons make up the last such category still standing. The TPNW heralds it is high time to get rid of them too.

The TPNW is not incompatible with the NPT. On the contrary, its Preamble reaffirms that "the full and effective implementation of the Treaty on the Non-Proliferation of Nuclear Weapons, which serves as the cornerstone of the nuclear disarmament and non-proliferation regime, has a vital role to play in promoting international peace and security". Moreover, Article 3 prescribes the observance of obligations related to NPT safeguards, and Article 18 states that "The implementation of this Treaty shall not prejudice obligations undertaken by States Parties with regard to existing international agreements to which they are a party, where those obligations are consistent with the Treaty."

The TPNW is not incompatible with the NPT. On the contrary, its Preamble reaffirms that "the full and effective implementation of the Treaty on the Non-Proliferation of Nuclear Weapons, which serves as the cornerstone of the nuclear disarmament and non-proliferation regime, has a vital role to play in promoting international peace and security.

These and other TPNW provisions make clear that, far from undermining the NPT or establishing an "alternative norm" to it, what the new Treaty actually does is to put due emphasis on full compliance with a key NPT norm: the one contained in Article VI. None of the states that acceded to or support the TPNW has ever suggested that the regime instituted by the NPT should be replaced or that it is unnecessary. The Prohibition Treaty does not seek to contradict or undercut the NPT regime, but rather to help put into motion a process that leads to the fulfilment of a key objective: eliminating nuclear weapons.

Notwithstanding its many caveats, each NPT party is committed by Article VI to pursue negotiations in good faith on different sets of measures. In a well-reasoned article published in the Non-proliferation Review Ambassador Luiz Filipe de Macedo Soares, former Secretary-General of the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL), explained that under that provision the parties to the NPT, whether they have nuclear weapons or not, are perfectly entitled to negotiate on "effective measures relating to nuclear disarmament" as therein prescribed. This is precisely what the negotiators of the TPNW did. The open-ended and transparent character of the Working Group and of

the actual negotiation of the Ban Treaty leaves no doubt as to the good faith in which its activities were carried out.

Even before the TPNW enters into force, much can be done in favour of nuclear disarmament in the existing multilateral forums and through negotiations, bilateral or otherwise, or by means of individual decisions. Certain measures are worthwhile in themselves and can contribute to the shared goal of a world without nuclear weapons, such as the promotion of the entry into force of the CTBT, the commencement of work on a fissile material treaty that takes into account existing stocks and the reduction of nuclear forces. Other actions aimed at lowering the risk of their use would certainly be valuable and useful. To reaffirm that "a nuclear war cannot be won and must never be fought" is a constructive proposition. However, these actions are not a substitute for actual disarmament.

Regardless of their views on the Ban Treaty all responsible States must work together to reinforce the common will to achieve a world free of nuclear weapons. The consequences of failing to recognize this urgent need are simply too costly.

Lately, public attention to the issue of nuclear disarmament appears to be waning. Governments and mainstream media in nuclear armed states and their allies extoll the purported value of their armament and seldom dwell on the risks inherent in the possession of atomic arms or on the catastrophic consequences of their use and usually blame adversaries for actions that increase tensions. They do not seem to realize that each increase in the stealth, speed, accuracy and explosive power or new technological advancement of their weapons immediately engenders countermeasures by potential adversaries, in a never-ending competition for elusive supremacy. The enduring threat posed by nuclear weapons is also more easily dismissed or brushed aside in a context dominated by pressing economic and social concerns – and by polarized politics. All responsible members of the international community should strive to reverse this worrisome trend. The positive, convergent objectives and features of the NPT and the TPNW should be used to advance agreement on effective nuclear disarmament measures and at the same time to preserve and strengthen the non-proliferation regime. Inaction and complacency are not acceptable options. Regardless of their views on the Ban Treaty all responsible States must work together to reinforce the common will to achieve a world free of nuclear weapons. The consequences of failing to recognize this urgent need are simply too costly.

The landmark New Strategic Arms Reduction Treaty, set to expire on February 5, is the last treaty between the U.S. and Russia placing limits on the growth of the world's two largest nuclear arsenals. It put a limit on the number of warheads deployed by each side to 1,550. But the follow-on was left unclear.

In a message marking the 75th anniversary of the nuclear attack on Hiroshima and Nagasaki, Pope Francis remarked that not only the use but the mere possession of nuclear weapons is immoral. All those who wish and strive for a peaceful environment for themselves and their descendants should take heed of his ponderings: "It has never been clearer that, for peace to flourish, all people need to lay down the weapons of war, and especially the most powerful and destructive of weapons: nuclear arms that can cripple and destroy whole cities, whole countries".

Source:https://www.indepthnews.net/index.php/opinion/3948-soon-nuclear-weapons-will-be-prohibited 27 October 2020.

OPINION – Tara D. Sonenshine

A Bombshell US-Russia Nuclear Deal? Or a Diversionary Tactic?

Through enterprising reporting by Michael Gordon in The Wall Street Journal, we first learned that the U.S. and Russia were on the verge of an arms-

control deal that would freeze the number of nuclear warheads on each side and extend the New START agreement for a year. That's a pretty big deal a few weeks before a presidential election at a time when we are concerned about Russian interference in the election.

The landmark New Strategic Arms Reduction Treaty, set to expire on February 5, is the last treaty between the U.S. and Russia placing limits on the growth of the world's two largest nuclear arsenals. It put a limit on the number of warheads deployed by each side to 1,550. But the follow-on was left unclear. What seemed like a frozen issue regarding an extension of that nuclear agreement suddenly appears to have thawed with the release of statements from Moscow and Washington:

"The United States is prepared to meet immediately to finalize a verifiable agreement. We expect Russia to empower its diplomats to do the same," said a State Department statement. The Russian Foreign Ministry said in a statement that the country "proposes extending New START for one year, and at the same time, it stands ready, together with the U.S., to assume a political obligation on freezing a number of the nuclear warheads possessed by the parties for this period."

Why now? How serious are these statements? On the one hand, the news throws a bit of a public diplomacy curve ball to Vice President Biden just days before a presidential debate. Should he embrace this idea or express skepticism?

First, it is worth underscoring that arms control is always in the national interest, and reducing the dangers of a nuclear conflagration is part of what all Americans should want from their leaders. In the case of Russia, where, together with the United States, 90 percent of the world's nuclear weapons exist, it is critical that we make progress on reigning in the numbers of weapons with agreements that can be monitored and verified. So, we should all welcome any progress on that front in the sense of a big picture.

Given its timing, this announcement seems more political in nature than anything else. The details have not been fleshed out or likely negotiated, and with these kinds of treaties, the devil is always in the details. Yes, this is a good step, but we should have a lot of questions about how these goals could actually be met, legally and legislatively. We know very little about how the United States and Russia would actually monitor and inspect each other's nuclear warhead production sites — a new twist, and what legally binding agreements could be reached to see one another's highly sensitive warhead locations. Second, noticeably absent from the American and Russian statements are any mention of the inclusion of the Chinese or Europeans — both of whom are critical to long-term arms control success.

But so much has happened between the United States and Russia with investigations of hacking, charges of cyber intrusions in Western elections, alleged poisoning of Russians and the minefield of issues around Russia and Ukraine that culminated in impeachment hearings.

Another big sticking point will be Senate ratification of any upcoming agreement that might flow from this framework agreement. With the Senate potentially about to change in complexion, it seems highly unlikely that hearings will be scheduled immediately to examine the intentions of both sides. With U.S.-Russia relations at a low point, this is not going to be an easy road. Nobody wants a nuclear war. That's the easy part. The rest is very complex. America and Russia have been negotiating treaties to limit nuclear weapons since the now-famous SALT negotiations in the early 1970s. The Strategic Arms Limitation Talks were aimed at curtailing the manufacture of strategic missiles capable of carrying nuclear weapons.

Subsequent agreements were reached in the early 1990s and then the major milestone in a New Start Treaty signed in February 2011 — the one due to expire in February. But so much has happened between the United States and Russia with

investigations of hacking, charges of cyber intrusions in Western elections, alleged poisoning of Russians and the minefield of issues around Russia and Ukraine that culminated in impeachment hearings. It is fair to be skeptical about whether or not this is really an arms control announcement or just a diversion from COVID-19 and other global unpleasantness. My advice would be to embrace the big picture goal of arms control but not get backed into a corner on the details. Where we can all agree is on the need to put restraints on nuclear weapons. In a time of massive disagreement, that's a useful place to begin.

Source:https://thehill.com/opinion/national-security/522063-a-bombshell-us-russia-nuclear-deal-or-a-diversionary-tactic, 21 October 2020.

OPINION - Peter Huessy

A New Nuclear Deal with Iran?

Both U.S. contenders of the presidency, the incumbent Donald J. Trump and the challenger, former Vice-President Joe Biden, have indicated that no matter what the election results are around November 3, they intend to negotiate with Iran. Even if the United States secured a new nuclear agreement with Iran, or resuscitated the old one, what makes anyone think that Iran would honor a deal any more than it honored the last ones?

U.S. choices seem to come down to: (1) keeping the current JCPOA, a seriously deficient semi-agreement that, contrary to what was promised by the Obama administration — that it would prevent Iran from having a nuclear bomb, instead leads straight to Iran's having as many as it would like; or (2) pin U.S. hopes on a wholesale campaign of diplomatic, political, and economic sanctions against Iran in the hope that Iran might secure an internally generated revolution and overthrow the mullah's regime.

There are those who say that the current nuclear deal is the best option for the United States. They assert without a doubt that going back to the JCPOA will bring Iran into complete compliance with a non-nuclear future. One adherent of such an approach is apparently former Vice President Joe Biden, with whom the Iranians say, understandably to judge from his financial track record, they would rather "do business."

The defects of the current JCPOA deal are real. As Ambassador Eric Edelman and retired General Chuck Wald recently explained, Iran's search for a nuclear-capable missile was actually given an impetus by the current deal, including a provision ending the UN arms embargo against Iran.

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The current deal is even worse, given Iran's ongoing space launch and missile production. One expert described them as a "... a crucial building block establishing a global range nuclear missile force..." to say nothing of the potential for stimulating or even underwriting nuclear proliferation.

How then can the United States get around the Iranian regime's adamant opposition to any restrictions on its nuclear or missile ambitions and secure a sound nuclear deal?

First, tough ongoing and snap-back economic sanctions have significantly reduced Iranian support for its terror proxies in Syria, Lebanon, Iraq, Yemen and the Gaza Strip.

Second, U.S. domestic production, and especially fracking, have reduced oil and gas prices by upwards of fifty percent from a decade ago. Those circumstances have insulated the U.S. economy from Middle East oil price shocks including those from Iran, should Iran seek to disrupt oil transport though the Strait of Hormuz or attack Gulf oil storage or export facilities.

Third, the U.S. has created a significantly better armed coalition of allied nations including Saudi Arabia, Egypt and Israel, which are now vastly more able to counter Iran's malignant behavior in the Middle East. Regional U.S. military commander Gen. Kenneth McKenzie, for instance, has explained that Iranian-created tensions have ebbed. Some coalition members have, in fact, adopted unprecedented formal peace agreements with Israel.

Fourth, America's successful destruction of the ISIS "caliphate" removed a major source of Middle East instability and allowed the U.S. to focus on Iran's threat.

Fifth, the U.S. took out Iran's top terrorist leader — General Qassem Soleimani — thereby proving to the Iranian mullahs and US allies that the America, at least under the current administration, means business.

Sixth, and perhaps most importantly, more and more expert analysts have determined the JCPOA was an extremely toxic agreement; fatal flaws identified by the Israelis years ago have now been confirmed.

Even if these six factors may now make it possible to give "diplomacy a chance," it might be advisable only to try that route if it is reinforced with resolute military force. Of what should a sound nuclear deal with Iran consist? First, there should be five principal prohibitions:

- No right to enrich.
- No right to advanced centrifuges.
- No right to offensive ballistic missiles.
- No right to sunset provisions.
- No right to terrorism.

With no right to enrich, possessing advanced uranium centrifuges have no legitimate purpose. With no nuclear warheads in Iran's future, ballistic missiles with which to carry such warheads also become unnecessary. Given the seriousness of these issues and the lack of trust in the mullahs, all provisions must not have "sunset clauses" but be permanent.

The original JCPOA gave Iran the right to enrich uranium — a right that no other non-nuclear member of the Nuclear Non-Proliferation Treaty had ever been granted.

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Finally, if Iran wants to "do business" as a normal nation state, the mullahs must also reject their jihadist agenda. There are no legitimate grievances that justify Iran's terrorism. Any normalization must also include reparations paid to American victims of Iranian terrorism.

The JCPOA it is not only a fraud, it is camouflage for the appeasers of the world to pretend they are doing something about Iran's nuclear ambitions when in fact they are not doing anything but allowing Iran, after a short delay, to have nuclear weapons. So, keeping the JCPOA deal means that the mullahs get nuclear weapons.

The principles for such a deal with a possible chance for tenuous success are well known; the real question seems if anyone in charge of Iran will actually abide by them.

Iran may indeed reject any deal outright. Is there a third way? The JCPOA it is not only a fraud, it is camouflage for the appeasers of the world to pretend they are doing something about Iran's nuclear ambitions when in fact they are not doing anything but allowing Iran, after a short delay, to have nuclear weapons. So, keeping the JCPOA deal means that the mullahs get nuclear weapons; waiting for the mullahs to come to their senses also means that the mullahs, down the road, get nuclear weapons. The mullahs will not change on their own. Diplomatic options are poor and unrealistic.

The JCPOA deal not only fails to stop Iran from

having a nuclear weapons and the missiles to deliver them, it also hides Western inaction in confronting Iran's missiles, nuclear sites and terrorism.

Source: Peter Huessy, Senior Consulting Analyst at Ravenna Associates, is President of GeoStrategic Analysis. https://worldisraelnews.com/opinion-a-new-nuclear-deal-with-iran/, 29 October 2020.

NUCLEAR STRATEGY

RUSSIA-CHINA

Russia and China's Nuclear Weapons are becoming More Dangerous

The U.S. must massively "revise" its nuclear weapons-oriented 21st-Century Strategic Deterrence Theory to reinvigorate its arsenal of current and future weapons of mass destruction as a way to stay in front of fast-modernizing rivals, the Commander of U.S. Strategic Command said. Adm. Charles Richard told a prominent think tank that the U.S. must quickly and efficiently prepare to face two major nuclear-armed rivals in the coming years, citing Chinese and Russian nuclear-weapons modernization as well as fast-emerging threats posed by North Korea and Iran.

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Having not faced a major nuclear rival in decades, the U.S. needs to fortify and strengthen its deterrence posture through the construction of new nuclear-weapons and maintenance of current systems, Richard said, according to a Pentagon report. "Given Russia and China's expanding capabilities in increasingly aggressive behavior, and those posed by nuclear North Korea and possibly Iran, we must reinvigorate the national conversation on the importance of strategic deterrence," Richard told the Center for Strategic and International Studies. The fundamental concept of deterrence theory is of course grounded upon the premise that the massive amount of destructive power contained in nuclear weapons help, if even somewhat paradoxically, keep peace and prevent war.

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The current climate, however, is one in which major rivals such as Russia have built new low-yield nuclear weapons and, as Richard put it, blurred the line between conventional and nuclear weapons. This blurring, some suggest, could lower the threshold to nuclear war of some kind. Russia's addition of new low-yield tactical nuclear weapons is likely one reason why the Trump administration's Nuclear Posture Review has inspired the U.S. to create new, low-yield sea-launched nuclear-armed cruise missiles and ballistic missiles.

"Our post-Cold War experiences of operating in uncontested domains are over. Our adversaries took advantage of this period, emboldened ... their aggressive behavior, expanded their capabilities and reconsidered their tactics and strategies." What would it mean to revise deterrence theory? Perhaps an even larger nuclear arsenal than that which is currently planned? Richard could be referring to a number of possibilities, including the continued acceleration of the Pentagon's new ICBM program, Ground-Based Strategic Deterrent. DoD plans to build as many as 400 new, more resilient, reliable and accurate ICBMs to replace the 1960s-era Minuteman IIIs. As part of this strategy, Richard also stressed the importance of upgrading and maintaining the Minuteman IIIs for the purpose of preventing a lapse in weaponry as GBSD comes online. It may also be possible that Richard intends to advocate for the Pentagon to acquire larger numbers of its now-in-development SLBM, Submarine Launched Ballistic Missile. This nuclear-armed SLBM has already

been engineered as a new, lower-yield variant of the well known Trident II D5 weapon.

Source:https://nationalinterest.org/blog/buzz/russia-and-chinas-nuclear-weapons-are-becoming-more-dangerous-171451, 27 October 2020.

USA

Biden White House Seen Revamping Strategy for Nuclear Weapons

Joe Biden administration would re-examine the U.S. nuclear strategy and arsenal, the Democratic chairman of the House Armed Services Committee says. Rep. Adam Smith (D-Wash.), who's questioned and criticized the need to boost the nuclear arsenal, said he's "quite confident," a new administration would reassess plans.

Democratic presidential nominee Biden has indicated that he would place smaller emphasis on the role that nuclear weapons would play in a defense strategy. Biden's campaign website says he believes the "sole purpose" of the U.S. nuclear arsenal is for deterrence or, if necessary, for retaliation against an atomic attack.

Boosting and overhauling nuclear weapons has been an issue that has split—sometimes acrimoniously—Democrats and Republicans on the Armed Services panel. Current plans call for modernizing the capacity to deliver nuclear weapons via land-based missile systems, nuclear submarines, and strategic bombers—the "nuclear triad." The Congressional Budget Office estimates such an effort could cost as much as $1.2 trillion through 2046 for development, purchasing and long-term support.

"If a triad is necessary for that deterrence, I can see that argument; I am skeptical about it," Smith said at an event hosted by the Center for a New American Security. The ICBM fleet "right now, is driven as much about politics as it is by policy and necessity," Smith added.

Few Details: While not offering details, Democratic presidential nominee Biden has indicated that he would place smaller emphasis on the role that nuclear weapons would play in a defense strategy. Biden's campaign website says he believes the "sole purpose" of the U.S. nuclear arsenal is for deterrence or, if necessary, for retaliation against an atomic attack.

"Our nuclear arsenal should be managed in a way that deters the use of nuclear weapons and makes nuclear use less likely. The use of even one nuclear weapon would be catastrophic, cause significant casualties, and result in enduring radiation that could affect millions of humans, as well as the environment," Biden said in written answers to the Council for a Livable World. "There would be no 'winners' in a nuclear exchange."

Biden, in the same written responses, said the U.S. doesn't need new nuclear weapons, opposing the deploying of low-yield nuclear warheads. "A Biden administration will work to maintain a strong, credible deterrent while reducing our reliance and excessive expenditure on nuclear weapons," he said. "My administration will pursue a sustainable nuclear budget that maintains a viable deterrent for us and our allies."

The Pentagon's next generation ICBM program could cost U.S. taxpayers as much as $110.6 billion, according to internal Defense Department estimates, adding to a wave of big-ticket nuclear weapons programs slated for the years ahead.

Contracts Awarded: The new estimate includes a $13 billion contract Northrop Grumman Corp. received in September to start full-scale development and eventual production of missiles intended to replace the aging Minuteman III system, the land-based portion of the U.S. nuclear triad.

The ICBM contract provides momentum for U.S. plans to modernize the capacity to deliver nuclear weapons through the triad, a bipartisan effort started during the Obama administration. As part of the broader renovation, the Navy plans to start construction this month on the first Columbia-class nuclear missile submarine, an estimated $128 billion program that will eventually produce 12

subs. General Dynamics Corp. won the contract for the new sub. Meanwhile, Northrop is the maker of the classified new B-21 stealth bomber, a program estimated at $80 billion.

Source: https://about.bgov.com/news/biden-white-house-seen-revamping-strategy-for-nuclear-weapons/, 29 October 2020.

BALLISTIC MISSILE DEFENCE

TURKEY

No Boom, No Bang: Turkey's S-400 Missiles Failed to Achieve Anything: Greece

Turkish President Recep Tayyip Erdoðan wants to show the world that his homeland, which rests on the Anatolian peninsula in Western Asia and on a smaller portion of Balkan Peninsula in Southeastern Europe, fears no one. India's 'Most Powerful' Minister Counters China's Call To 'Prepare For War' By Citing The Indian Army Be it the rage of a military superpower, the United States of America or its own Mediterranean rival Greece, Turkey has surged ahead with its acquisition of the lethal Russian-made S-400 missile defence systems to becoming a master of its own destiny while taking no prisoners.

India's 'Most Powerful' Minister Counters China's Call To 'Prepare For War' By Citing The Indian Army Be it the rage of a military superpower, the United States of America or its own Mediterranean rival Greece, Turkey has surged ahead with its acquisition of the lethal Russian-made S-400 missile defence systems to becoming a master of its own destiny while taking no prisoners.

However, Ankara's pursuit of achieving defensive superiority in the region against foreign threats may now be put on an indefinite hold, with Greek reports suggesting that the test-firing of the deadly missile systems have failed, a claim that *EurAsian Times* cannot verify.Turkey, which had imported the lethal S-400 SAMS from Moscow in July of 2019, had reportedly been clearing its airspace and waters off the Black Sea coast for the missile's testing.

According to news reports, areas near the coastal city of Sinop had already been restricted by the country's authorities with aircraft also advised to avoid the area to a height of 200,000 feet (61,000 metres), while Ankara carried out a radar test and a live-fire of the missiles. However, according to local media reports which include Greek website, Pentapostagma, the testing of the missile systems was unsuccessful. The key reason for the failure though has been claimed to be Turkey's refusal to take assistance from Russian experts. Earlier, it was reported that Ankara had delayed the testing of the Russian missiles for a significant period of time after having identified defects in the missiles, which they had not been able to resolve on their own.

Moreover, the word from Moscow suggested that the Turkish Army didn't possess the expertise or the knowledge to put the missiles on alert and would need the intervention and supervision of Russian technicians, which went against the instructions of Turkish authorities. Earlier, a television channel named A Haber had said on its website that Turkey's military test-fired the Russian S-400, with reports claiming that three missiles were shot hitting three targets. However, according to fresh intel, videos published by Turkish agencies show just the launch of the missiles, with no visuals of the targets being hit or a sound of an explosion of a missile warhead, creating confusion among many.The news will come as a huge relief to the United States who had warned of "potential serious consequences" for its security relationship with Turkey if it activates the system.

Considered to be the most advanced of its kind, S-400s are the most modern long and medium-range SAMs which have been intricately designed to detect and destroy aircraft and cruise and ballistic missiles, while also possessing the strength to eliminate ground-based installations.

Source:https://eurasiantimes.com/no-boom-no-bang-turkeys-s-400s-missiles-failed-to-achieve-anything-greece/, 20 October 2020.

NUCLEAR ENERGY

USA

Nuclear Energy Granted a State-Sponsored Lifeline in The U.S.

For the past several decades, the United States has been the poster child for the ailing state of the nuclear industry. The nuclear sector in the U.S. is plagued by aging infrastructure, mounting debts, dependence on government handouts, and the staggering cost of maintaining spent nuclear fuel. What's more, it's had to compete with the homegrown shale revolution, and expensive nuclear is simply no match for the tidal wave of cheap shale oil and gas that came flooding out of the West Texas Permian Basin.

The United States has long been the single-biggest generator of nuclear power in the world, accounting for a whopping third of global nuclear energy production. However, that status will likely soon be stripped away as the United States has seen one nuclear plant after another shutter after struggling and failing to stay in the black.

The United States has long been the single-biggest generator of nuclear power in the world, accounting for a whopping third of global nuclear energy production. However, that status will likely soon be stripped away as the United States has seen one nuclear plant after another shutter after struggling and failing to stay in the black, at the same time that other nations have pushed their nuclear programs forward with rapid rates of expansion. China, in particular, has invested huge sums into building up its nuclear program, and is on track to overtake France and then the United States to become the new biggest nuclear power producer on the planet. But the winds of change could soon be blowing for U.S. nuclear. Last month (Sep 2020) the nuclear sector got a small but certainly not insignificant state-sponsored lifeline when the DOE announced that "it would be awarding more than $65m in nuclear energy research, cross cutting technology development, facility access, and infrastructure awards." According to reporting by PowerTechnology, "the awards fall under the department's nuclear energy programs – the Nuclear Energy University Programme, the Nuclear Energy Enabling Technologies, and the Nuclear Science User Facilities."

And now there's even better news for U.S. nuclear power. "After hemming and hawing for decades, the United States is taking some big steps in developing advanced nuclear reactor technologies," Forbes reported. The article is referring to yet another major announcement from the DOE that took place. The department will be awarding $80 million each—and that's just in initial funding—to two different teams under the Advanced Reactor Demonstration Program (ARDP). The DOE has planned for an additional $3.2 billion in investment over the next seven years, an impressive sum that will be matched by the private sector within the nuclear industry. One of these teams is to be led by Bill Gates' brainchild TerraPower in a joint effort with GE Hitachi. The other will be spearheaded by X-energy.

While there has been a lot of buzz recently about nuclear power not being as great for combating climate change as we previously thought thanks to a recent study that found that nuclear energy can't compete with renewables when it comes to lowering our carbon footprint, even though nuclear energy is considered to be an emissions-free form of energy production.

This money is intended for use within the next five to seven years in the process of developing, testing, licensing, and finally building advanced nuclear reactors. What makes these new cutting-edge reactors particularly special is the fact that they can not and will not melt down. Nuclear plant meltdowns, while extremely rare, loom large in the public memory as well as the public memory after high-profile nuclear disasters such as the tragedies at Chernobyl, Fukushima, and Three-Mile Island, making nuclear a hard sell for most constituents.

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climate change as we previously thought thanks to a recent study that found that nuclear energy can't compete with renewables when it comes to lowering our carbon footprint, even though nuclear energy is considered to be an emissions-free form of energy production. That being said, that's just one study, and there are plenty of academics and scientists who think nuclear is a crucial part of a climate-friendly energy future. As Fatih Birol, Executive Director of the International Energy Agency wrote in a recent opinion piece for CNN, "Without nuclear power, the world's climate challenge will get a whole lot harder."

Source:https://oilprice.com/Alternative-Energy/Nuclear-Power/Nuclear-Energy-Granted-A-State-Sponsored-Lifeline-In-The-US.html, 24 October 2020.

NUCLEAR COOPERATION

INDIA-USA

2+2 Dialogue: With the Signing Of BECA, India-U.S. Security Partnership Takes Center Stage

The signing of the Basic Exchange and Cooperation Agreement (BECA) frees India-U.S. bilateral relations from binding restrictions and security clauses mandated earlier within the establishment. With BECA, technology barriers have largely been overcome. Defence and Security take up the center stage of India-U.S. bilateral relations moving beyond the buyer- seller dynamic to greater partnership in Indo-Pacific and elsewhere.

In the third annual India-U.S. 2+2 Ministerial Dialogue, Defence and Security take the center-stage of the India-U.S. relationship which is now elevated to a Comprehensive Global Strategic Partnership.With BECA, technology barriers have largely been overcome now. It will open to defence and security collaboration and exchanges that we see U. S. conducting with allies like South Korea and Japan in the region

India's Minister of Defence Rajnath Singh and Minister of External Affairs Dr. S. Jaishankar held crucial meetings with U.S. Secretary of State Michael R. Pompeo and Secretary of Defense Dr. Mark T. Esper in New Delhi. Pompeo and Esper also held talks with National Security Advisor Ajit Doval. As reported, they discussed the issues of strategic importance. The meeting took place ahead of the third edition of 2+2 ministerial dialogue. Along, they met Prime Minister Narendra Modi. Besides BECA, the U.S. also reaffirmed its continued strong support for India's permanent membership in a reformed UNSC as well as for India's early entry into the NSG. In a statement, the MEA called the 2+2 dialogue among the most "significant in propelling India-US ties forward". The first edition of the dialogue took place in Delhi in September 2018, the last one was in Washington December 2019. ...

India-US Civil Nuclear Cooperation: Civil Nuclear cooperation was one of key elements of 2+2 Dialogue since the Project Division of Responsibility principles between NPCIL and Westinghouse Electric Company (WEC) for the construction of six nuclear reactors at Kovvada, reached to the next level. It will be open for a techno-commercial offer. The India-US Nuclear Project was initiated as a milestone in the next phase of India's civil nuclear program, raising the total capacity of nuclear energy in the overall energy mix.

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Talks are on for quite some time with US-based Westinghouse Electric Company for the establishment of six nuclear power reactors with a capacity of 1,208 MW each at Kovvada in Srikakulam district. But projects have been facing hurdles from both sides. The Kovvada nuclear plant was proposed about a decade ago. In the beginning, local fishermen and environmentalists strongly opposed the project, even as the state government managed to acquire about 450 acres of land as against the required 2,000 acres. Later, the project stalled as Westinghouse Electric Company almost went bankrupt in 2017. President Trump during his visit had resolved to continue the civil nuclear project with revamped Westinghouse Electric. ...

Source:http://www.businessworld.in/article/2-2-Dialogue-With-The-Signing-of-BECA-India-U-S-Security-Partnership-Takes-Center-Stage-/28-10-2020, 28 October 2020.

NUCLEAR DISARMAMENT

GENERAL

From 'Open-ended Talks' to Ratification and Beyond

Now the UN Treaty on the Prohibition of Nuclear Weapons is due to become international law, nuclear powers need to engage constructively on nuclear disarmament. From the moment two atomic bombs killed two hundred thousand people in two split seconds over Hiroshima and Nagasaki seventy-five years ago, nuclear weapons have caused nightmares, environmental contamination, self-serving myths and abuses of power. What will change now that the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW) is on the threshold of making nuclear weapons internationally illegal? It is significant that the 90 day countdown to the legal entry into force of this multilateral nuclear disarmament Treaty was triggered by three nations (Honduras, Jamaica and Nauru) from the Global South. Symbolic too, that this occurred in time for the 50th ratification to be deposited with the UN Secretary General on 24 October, the 75th anniversary of the founding of the United Nations .

What will change now that the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW) is on the threshold of making nuclear weapons internationally illegal? It is significant that the 90 day countdown to the legal entry into force of this multilateral nuclear disarmament Treaty was triggered by three nations (Honduras, Jamaica and Nauru) from the Global South.

This Treaty Prohibiting Nuclear Weapons was brought about by "We the Peoples", in direct opposition to the wishes of the nine nuclear armed governments, who desperately tried to stop the Treaty as negotiations opened in the UN General Assembly with rules that were developed by the UK and others to achieve the Arms Trade Treaty a few years earlier. The UN rules ensured that all governments were invited to the table and no-one was given the power to veto. That made it possible for this Treaty to be negotiated and adopted by an overwhelming majority of states. The security and needs of the majority of nations who had decided to forego these weapons of mass extinction were barely taken into account.

Seventy years of campaigning by Japanese Hibakusha, such as Setsuko Thurlow and survivors of nuclear testing and colonialism, as well as generations of doctors, scientists and peace activists, culminated in UN 'open-ended' talks from 2013 that enabled far more people and governments to discuss how best to prevent the catastrophic consequences and risks of nuclear use and war. These in turn led to UN negotiations in 2017 that upended the privileges and assumptions of cold war arms control and made inroads into the nuclear club's macho fiefdom. Unable to block the negotiations or veto the Treaty, the nuclear armed states staged a boycott. Some, including three members of the UN Security Council, lined up their ambassadors in a weird demonstration outside the UN General Assembly as their colleagues from other countries streamed into the hall to begin the serious business of banning nuclear weapons. Treaty negotiations were controlled by a handful of governments that possessed nuclear weapons and wanted to keep control of the associated power and technologies for their own use.

Some, including three members of the UN Security Council, lined up their ambassadors in a weird demonstration outside the UN General Assembly as their colleagues from other countries streamed into the hall to begin the serious business of banning nuclear weapons.

Three years later, we are celebrating that the

Treaty Prohibiting Nuclear Weapons will become international law on January 22, 2021. Making human security the objective of negotiations, instead of privileging military-industrial interests, has resulted in a powerfully different Treaty, based on humanitarian law and feminist security principles. The preamble clearly sets out the shared security interests of the world's peoples: "... *the catastrophic consequences of nuclear weapons cannot be adequately addressed, transcend national borders, pose grave implications for human survival, the environment, socio economic development, the global economy, food security and the health of current and future generations, and have a disproportionate impact on women and girls, including as a result of ionizing radiation....*"

In a last ditch derailing attempt, the Trump administration sent a letter and talking points to many governments. Arrogantly describing national decisions to join the Treaty as a "strategic error", the letter tried to pressure them to pull out.

This leads to the core prohibitions on acquiring, developing, manufacturing, testing, deploying, transferring, possessing and using nuclear weapons. It is stipulated that everyone who is bound by the Treaty must also support its full implementation and avoid assisting, inducing or encouraging anyone else to violate its provisions in any way. Having chosen to boycott the negotiations, the nuclear armed states complain that the Treaty is "dangerous" and doesn't take their interests into account. In a last ditch derailing attempt, the Trump administration sent a letter and talking points to many governments. Arrogantly describing national decisions to join the Treaty as a "strategic error", the letter tried to pressure them to pull out. Among its talking points the US repeats its discredited accusation that the new Treaty undermines the 1968 NPT and complains that the text does not fully determine how its prohibitions and provisions will be verified and implemented. On the contrary, the Treaty was overwhelmingly adopted by 122 NPT member states in 2017, and UN Secretary-General António Guterres recently described it as an important pillar to strengthen nuclear disarmament and nonproliferation. ...

Public opinion polls show large majorities of British people in favour of nuclear disarmament and opposing Trident replacement, projected to cost £205 billion. More and more, people are coming to see that nuclear weapons pose extinction level risks and are not a political or security asset.

The legal, structural and institutional details will begin to be negotiated at the first meeting of TPNW states parties, which is scheduled to take place before the end of 2021, probably in Vienna, where both the IAEA and the CTBT are headquartered. Similarly, the Treaty provided two practical pathways for nuclear armed and umbrella states to make choices in how they join and comply with the Treaty's requirements that they end reliance on nuclear activities and eliminate these weapons, programmes and policies. Recognising that one size doesn't fit all, and the nine nuclear arsenals are very different, the Treaty is deliberately constructed to enable the existing nuclear armed states and their nuclear umbrella allies to participate in the process as observers until they are ready to join.The non-nuclear nations came together with humanitarian and disarmament experts and civil society activists to bring this ground-breaking nuclear disarmament treaty into international humanitarian law.

Public opinion polls show large majorities of British people in favour of nuclear disarmament and opposing Trident replacement, projected to cost £205 billion. More and more, people are coming to see that nuclear weapons pose extinction level risks and are not a political or security asset. They are useless for tackling today's major security challenges, including the climate, Covid and ecological emergencies. The Scottish Government publicly endorses it and seeks to rid Scotland of Trident and end the dangerous transportation of warheads between Faslane, Coulport, and Berkshire's bomb factories,

Aldermaston and Burghfield. With the Treaty close to entry into force, major international banks and financial institutions are beginning to divest from nuclear weapons production, informed by ICAN's "Don't Bank on the Bomb" campaign.

And a growing number of city and county councils, from Manchester and Edinburgh to Renfrewshire and Oxford, have signed up to support the Treaty's implementation, with many more likely to follow in the next weeks and months. Until there is a government able to take the necessary political decision to join the Treaty, it will be important to send UK diplomatic and scientific delegations to observe the TPNW meetings of states parties and contribute expertise and ideas as the legal, institutional and verification systems for Treaty implementation. The House of Lords has urged this constructive approach, which previous UN governments have taken towards other important Treaties, even before taking the political decisions to join.

Source:https://www.opendemocracy.net/en/can-europe-make-it/nuclear-disarmament-from-open-ended-talks-to-ratification/, 28 October 2020.

NUCLEAR PROLIFERATION

IRAN

Satellite Photos Show Construction at Iran Nuclear Site

Iran has begun construction at its Natanz nuclear facility, satellite images released show, just as the UN nuclear agency acknowledged Tehran is building an underground advanced centrifuge assembly plant after its last one exploded in a reported sabotage attack last summer.

The construction comes as the US nears Election Day in a campaign pitting President Donald Trump, whose maximum pressure campaign against Iran has led Tehran to abandon all limits on its atomic program, and Joe Biden, who has expressed a willingness to return to the accord. The outcome of the vote likely will decide which approach America takes. Heightened tensions between Iran and the US nearly ignited a war at the start of the year.

Since August, Iran has built a new or regraded road to the south of Natanz toward what analysts believe is a former firing range for security forces at the enrichment facility, images from San Francisco-based Planet Labs show. A satellite image shows the site cleared away with what appears to be construction equipment there.

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Analysts from the James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies say they believe the site is undergoing excavation.

"That road also goes into the mountains so it may be the fact that they're digging some kind of structure that's going to be out in front and that there's going to be a tunnel in the mountains," said Jeffrey Lewis, an expert at the institute who studies Iran's nuclear program. "Or maybe that they're just going to bury it there."

Rafael Grossi, the director-general of the IAEA, told The Associated Press that his inspectors were aware of the construction. He said Iran had previously informed IAEA inspectors, who continue to have access to Iran's sites despite the country having moved away from many limits of its landmark 2015 nuclear deal with world powers, known as the Joint Comprehensive Plan of Action, or JCPOA.

"They have started, but it's not completed. It's a long process," Grossi said. Alireza Miryousefi, a spokesman for the Iranian mission to the United Nations, would not comment on the satellite images or discuss specifics of the construction, but said Iran was being transparent with its

actions. "Nothing in Iran regarding its peaceful nuclear program is being done in secret, in full keeping with the JCPOA, and as the IAEA has repeatedly confirmed," Miryousefi said in an email. "This instance is no different," he said. ...

Source: https://timesofindia.indiatimes.com/world/middle-east/satellite-photos-show-construction-at-iran-nuclear-site/articleshow/78916042.cms, 28 October 2020.

NUCLEAR SAFETY

AFRICA

Building Robust, Sustainable, Resilient Nuclear Safety and Security Infrastructure: African Countries Collaborate

Enhancing collaboration both within and between countries in Africa in nuclear safety and security is key to strong, sustainable regulation on the continent, agreed speakers at the meeting of regulators from 33 African countries in a virtual meeting last month.

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At the annual meeting of the Forum of Nuclear Regulatory Bodies in Africa (FNRBA), which took place on the sidelines of the 64th IAEA General Conference, over 200 participants discussed the Forum's 2020-2021 Action Plan, recommendations for improving engagement and synergies within each African Member State to address regional needs in nuclear and radiation safety and nuclear security. IAEA Director General Rafael Mariano Grossi highlighted the importance of considering nuclear power to meet the growing energy needs in the region.

"Africa is not an idle spectator when it comes to climate change issues which affect the entire world," he said. "Nuclear definitely has a place at the table. It can play a vital part in countries' energy mix, but it is essential that they have a strong safety and security infrastructure in place." He noted that the IAEA plays a key role in supporting the establishment of effective legal and regulatory frameworks in Africa and throughout the world. The FNRBA — recognised in 2019 as an intergovernmental regional organization — plays a vital collaborative role in Africa in raising awareness of and promoting the safe and secure use of nuclear technology. Since its establishment in 2009, FNRBA has been and continues to actively enhance, strengthen and harmonize radiation and nuclear safety and security regulatory infrastructure among its members. Its thematic working areas centre on legislative and regulatory infrastructure, radiation and waste safety, nuclear safety infrastructure, regulatory Infrastructure for emergency preparedness and response, safety in the transport of radioactive material and nuclear security infrastructure. Participants at the meeting heard that requests for IAEA peer review and advisory services in the region had increased over the last two years and that joint programmes had been created for human resource development in nuclear safety and security education and training – with the aim of increasing the sustainability of regulation on the continent. Additionally, following self-assessments by over 20 African regulators in 2019, there had been an increased focus on delivering capacity building activities.

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The need to increasingly support countries in adhering to international legal instruments on nuclear safety and security was highlighted. FNRBA Chairman Khammar Mrabit reaffirmed that although much work is still to be done in Africa, FNRBA members were both committed and able

to significantly improve and sustain safety and security in the region. "Continuous and close cooperation with the IAEA and other partners will be the key for achieving an impact and meeting the objectives of the IAEA safety requirements and security guidance," he said. The meeting was organized by the Moroccan Agency for Nuclear Safety and Security (AMSSNuR) in cooperation with the IAEA. ...

Source:https://www.iaea.org/newscenter/news/building-robust-sustainable-resilient-nuclear-safety-and-security-infrastructure-african-countries-collaborate, 16 October 2020.

NUCLEAR WASTE MANAGEMENT

GENERAL

Nuclear Waste Management in a Warming World

Nuclear has a widely acknowledged role which should be expanded to help in phasing out fossil fuels during a time when power demand is rapidly expanding. But progress has to be made on social acceptance, both for rapid implementation of a new generation of reactors and for nuclear waste disposal — especially for longer-lived high-level waste.

Although subsea disposal of radioactive waste is forbidden by international conventions, this applies only to deep-sea variants outside national waters and not to offshore geological repositories accessed from land. Such repositories for low and intermediate level waste already exist (for example, SFR in Sweden).

In terms of climate change, a major concern is sea-level rise, an increased risk of storm surges and other flooding events. As much of our nuclear and other industrial infrastructure is sited at coastal locations, there is an urgent need to consider how to defend them against such climate effects. This is practical when the facilities are concentrated in relatively small areas.

With a little lateral thinking, waste management concepts can be developed in a way that help reduce concerns, particularly when surface facilities for deep geological disposal can be located beside existing nuclear plants. Even if not yet time-critical, it is worth initiating discussion of options now, given the long lead times for such projects.

Concept Outline: Reactors and other nuclear facilities select coastal locations for their technical benefits, such as ease of access and availability of cooling water. But this puts them at risk of rising sea levels.

Ease of access and good hydrogeological conditions may also make suitable offshore host formations attractive for waste disposal. Although subsea disposal of radioactive waste is forbidden by international conventions, this applies only to deep-sea variants outside national waters and not to offshore geological repositories accessed from land. Such repositories for low and intermediate level waste already exist (for example, SFR in Sweden). Advanced plans for repositories for higher activity waste in Sweden and Finland have them located in coastal locations that could lie below the sea in the near future.

Despite superficial similarities, the option of a deep geological repository constructed offshore, in a conventional manner with onshore access, differs from oceanic sub-seabed disposal in the following ways:

Waste disposal is in land that is within a country's borders rather than lying under international waters;

- A system of multiple engineered barriers can be placed with rigorous quality control to assure containment at a similar level to a land-based repository;
- Waste can be retrieved with existing technology, should such a decision be made in the future. This cannot be claimed for deep ocean options.
- Separation of surface waste management facilities and disposal sites has been considered elsewhere, especially when the former are on existing nuclear sites.

Topography is generally the main driving force for freshwater flows under land, with water fluxes usually decreasing as a function of depth. Near the coastline, the higher density of seawater results in penetration of a saline wedge under

land, the extent of which depends not only on the geological setting but also anthropogenic impacts such as water extraction. This simplistic representation of hydrogeology illustrates principles but cannot capture impacts of the geological settings at specific sites.

Inland and offshore disposal show a marked contrast in hydrogeological boundary conditions when compared to disposal below the coastal plain. The former tends to have higher hydraulic gradients, but longer transport distances to the biosphere and, potentially, higher dilution at the geosphere/biosphere interface if the migration plume is more dispersed. The latter has negligible hydraulic gradient and would ensure effectively no release of radionuclides into groundwater and, even if migration did occur (e.g. in the gas phase), there would be very high dilution of any outflow from the seabed. As hilly/ mountainous terrain would represent the source for deep flow within inland catchment basins, the groundwater would be younger and less saline. Closer to the coast groundwater would be older and more saline with offshore groundwater being even older, having a salinity at least equal to that of seawater.

In general, repository construction and operation challenges would be similar for the three options. Subsea, all access would be via ramps. Access to a subsea repository would be via ramps as the option of shafts (e.g. for ventilation, human access) used in conventional designs would not be practical, unless there were conveniently located islands close to the coast.

Long after repository closure, knowledge of its location may well be lost, perhaps resulting in inadvertent human intrusion. Whilst this risk would be higher in a plain located repository compared to an inland hill location due to human activities, risk of human intrusion offshore would be extremely low. In the absence of intrusion, the engineered barriers and geological setting will ensure complete containment for very long periods and low levels of release thereafter. Issues to be carefully considered on a concept- and site-specific basis include perturbations, eg the formation of chemical plumes and / or mobile colloids in an advective flow system.

As radionuclide release and migration will be predominantly by diffusion offshore, such issues are of less concern. Instead the challenges are perturbations that could cause more rapid radionuclide transport – eg in a gas phase or due to thermally-driven convective water flow.

Finally, socio-political factors play a major role. The remoteness and isolation provided by the subsea variant should aid acceptance, but the safety case would have to convince key stakeholders, in particular local fishermen. Protection of the marine environment is a global concern and, even if strictly legal and with negligible health risk, any disposal option that could give rise to a release of radioactivity into the sea could cause opposition in neighbouring lands.

Long-term Evolution of Coastal Environment: In the context of repositories for longer-lived wastes, where safety is assessed over hundreds of thousands of years, coastline changes as a consequence of climate change and glacial cycling must be taken into account.

Over the coming centuries, we expect further loss of ice sheets and hence an increase in sea level. The impact of such changes of the performance of a coastal repository is very dependent on local topography and bathymetry, but the key issues are:

Initial sea-level increase and gradual flooding of low-lying coastal plain areas. In the worst case - complete melting of the ice caps - this could cause a sea level rise of 80m. At some point in the future, it is assumed that the natural ice-age cycle will be re-established. The next ice age maximum would see a total decrease in sea level of H”150m compared to the present.

Thereafter, such cycles would repeat on a

timescale of hundreds of thousands of years, with the same sea level rise and fall but the impact affected by local uplift or erosion.

A coastal deep geological repository could be implemented within the next two decades, with waste emplacement until at least the end of the century. Current models suggest sea level increase will not exceed 1-2m over this period. This should not cause significant operational problems, although stronger storm surges have to be considered in the design of surface facilities.

In the following two or three centuries, while the repository is operational or under institutional control, sea level may rise by 10m or more. It is currently impossible to preclude a 'tipping point' of rapid ice sheet melting. In any case, it is prudent to assume that warming will cause retreat from coastal areas and, potentially, global economic disruption. Local impacts will depend both on topography and engineered counter-measures. Even if sea level rises faster than expected, the impact on a deep repository will be limited by the slower response of deep waters to surface changes.

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Thereafter, there is no scientific basis for making any kind of predictions. Human action can dominate natural climate cycles but its impact depends, for example, on global political decisions to limit emissions, geo-engineering to reduce impacts and the possibility of unknown tipping points or other black swan events.

In terms of a closed and sealed repository, the main concern would be whether the evolving salt wedge could cause significant changes to the groundwater chemistry or flow conditions. The direct impact on performance is likely to be minor as the engineered barriers should be assured over thousands of years.

If sea level rise can be limited to a few metres, the Earth's natural cycle will tend to move towards another ice age. As above, this would also have huge impacts on civilisation (e.g. due to loss of land area to ice sheets, especially in the northern hemisphere). Even with active climate control and incentives this sea level rise may not be stopped, at least over the timescale of a repository. Assuming further ice ages over the next million years, the shoreline in the vicinity of a repository could retreat by tens of kilometers in some areas. Changing hydraulic gradients and hydrochemistry would eventually give rise to conditions similar to those of the wide coastal plains. Fresh water would displace marine water from shallower formations, however it is unclear if this would also take place in deeper formations. Flow paths from an inland repository might be increased, while at an offshore repository location, path lengths would decrease and fluxes of salt or freshwater around the repository would be higher.

For higher latitudes, the impact of glaciation or, at least, permafrost formation must be taken into account when assessing the hydrogeological and geochemical impact of lower sea levels.

Tailored Repository Concepts for an Offshore Setting: There are many different concepts for the geological disposal of radioactive waste that can provide sufficient performance for specific types of waste in particular geological settings. This example considers spent fuel from light-water reactors or vitrified high-level waste (HLW) from reprocessing of such fuel, but it should be applicable to other fuel and waste types resulting from future generations of fission (or even fusion) reactors.

Conventional concepts for higher activity waste generally involve single packages of waste within a metallic overpack. For typical waste inventories, small diameter emplacement tunnels from tens to hundreds of kilometres long are required. Higher density waste emplacement can be achieved by utilisation of large caverns and multi-purpose storage-transport-disposal casks (MPCs) containing about 20 waste packages. Alternatively, waste may be emplaced in channels in a massive steel monolith. Higher densities reduce the repository footprint and make emplacement logistics easier. Less broken-out rock will reduce operational hazards (mainly associated with excavation), environmental impact and cost, but heat management becomes more of a concern.

Given the clear benefits of higher density emplacement, it is worth considering how concerns resulting from the higher thermal loading could be addressed. This can involve either delayed backfilling or a mixture of active and passive cooling using heat pumps and heat pipes. The latter has the advantage of allowing earlier closure, if this is required in response to altered programme boundary conditions, and also allows radiogenic heat to be used as a resource as long as the facility is under active management. In a diffusion-dominated environment, engineered barriers can be made more cost-effective. For example, instead of a massive overpack and thick buffer, a much smaller pre-fabricated EBS module ('mini PEM') could be used — with any further protection provided by an enclosing steel monolith and backfill (ideally utilising material resulting from the nuclear power plant decommissioning — an example of holistic waste management).

To allow sufficient dispersal of the thermal transient after such management, disposal vaults could be well separated – for an off-shore site, this would be less of an issue as the total repository footprint is unlikely to be a concern. For a typical host rock in which structures such as major faults constrain areas with better properties, layout can be easily tailored to utilise these.

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Moving towards Holistic Waste Management: A geological repository provides indirect benefits in the form of excavated spoil, which could be used for coastal defence structures.

In conventional concepts, a significant proportion of such spoil is re-emplaced as backfill but, from a more holistic waste management viewpoint, it would be beneficial to backfill with lower toxicity radwaste or other chemotoxic waste. Such mixed waste disposal has been considered anathema in the past due to the technical and sociopolitical complexities, but it provides opportunities to cost-effectively introduce the option of deep emplacement of waste that traditionally has been handled by surface or near-surface disposal. Surface disposal sites in coastal settings are almost all at risk of being compromised by sea-level rise — potentially requiring additional engineering defences to be incorporated. ...

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Centre for Air Power Studies
P-284
Arjan Path, Subroto Park,
New Delhi - 110010
Tel.: +91 - 11 - 25699131/32
Fax: +91 - 11 - 25682533
Email: capsnetdroff@gmail.com
Website: www.capsindia.org

Edited by: Director General, CAPS

Editorial Team: Dr. Sitakanta Mishra, Dr. Hina Pandey, Dr. Poonam Mann, Sreoshi Sinha, Zoya Akhter, Nasima Khatoon, Sanjana Gogna

Composed by: CAPS