



**OPINION – Manpreet Sethi**

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**From Bangladesh to Balakot: The Impact of Nuclear Weapons on India-Pakistan Dynamics**

Swarnim Vijay Varsh was celebrated throughout 2021 to mark 50 years of India's victory against Pakistan in the 1971 war. The three services commemorated their successes: the Indian Air Force's achievement of complete air superiority, its extensive disruption of Pak energy and transportation, and the foiling of its planned 'Tikka offensive'; the Indian Navy's blockade of Karachi seaport that crippled trade, and the Indian Army's march that compelled a surrender at Dhaka. At the same time, it is important to acknowledge that such an extensive use of force in a future war between the two may no longer be possible. Nuclear weapons in both countries have changed the bilateral equation.

1971 left a scar on the Pakistani military's psyche. Soon after the end of operations, the then Pakistani Prime Minister Zulfikar Ali Bhutto, who had long been inclined towards the acquisition of nuclear weapons, moved resolutely to acquire them. Nuclear weapons came to be perceived as a security imperative: a 'strategic equaliser' to address the conventional asymmetry with India, and a shield to avert the risk of conventional war, even as Islamabad indulged in acts of terrorism. These

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twin objectives have sustained as Pakistan continues to wage a proxy war against India with a network of terrorist organisations that it trains, equips, and supports. In Pakistan's perception, however, the deniability of such actions frees the country from responsibility. Meanwhile, projecting a low nuclear threshold protects Pakistan against the possibility of a conventional conflict.

Pakistan's acquisition of nuclear weapons has changed India's calculus of the use of force.

Despite its conventional superiority, New Delhi must customise the application of military instruments in a way that can effectively punish, but without causing a nuclear-armed Pakistan to feel the need to use its nuclear weapons. This is where the difference lies between the war that was waged in 1971 and one which will not be possible today, at least not without raising the risk of nuclear use. So, even as India's military capabilities have grown, their 'safe' employment has necessitated new thinking.

This changed reality first became evident in Kargil in 1999. The shadow of nuclear weapons tempered India's response in choosing self-imposed constraints on the application of force. Operation Parakam further exposed the limits of coercive diplomacy with a nuclear-armed adversary and the perils of a large-scale offensive under new circumstances. The 2001-02 episode forced India to look for novel conventional responses that could be meaningfully executed between two nuclear-armed countries without running the risk of nuclear escalation. India demonstrated innovative use of military instruments in 2016 and 2019.

The successful surgical strikes in 2016 illustrated the efficacy of using a sharper tool against a nuclear-armed adversary, rather than the blunt edge of full mobilisation. Rapid entry into and exit from enemy territory signalled India's ability to hurt terrorists and their supporters by hitting out at will, thereby denting the Pakistani Army's image and credibility.

Another arrow in India's quiver was used on 26 February 2019, when IAF aircraft flew across the international boundary into Pakistan to target a terrorist camp in Balakot in Khyber Pakhtunkhwa, in response to the attack on paramilitary forces on 14 February 2019. This was

the first use of air power between the two since 1971. In doing so, India rewrote the template on the use of force, opening new possibilities of retaliation. Air action trashed the assumption that Pakistan's nuclear weapons had tied India's hands on responding to Pakistani provocations. It also exposed Pakistani nuclear strategy's lack of credibility, which rests on projecting the inevitability of the use of 'tactical' nuclear weapons in response to Indian military action.

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From India's experience of conflicts with Pakistan pre- and post-nuclearisation, it is clear that conventional war in the presence of nuclear weapons will be a challenging proposition involving the re-thinking of politico-military objectives and operations. The pursuit of traditional war aims such as territorial occupation and blitzkrieg for fast-paced

attrition would be ineffectual to address an adversary's use of terrorism. It would also unnecessarily heighten Pakistan's sense of existential crisis, increasing the temptation to use nuclear weapons—thus raising the dangers to itself. The focus, therefore, must remain on choosing a military instrument that can deliver the right dose of punishment while minimising chances of escalation.

With this realisation, it is also important to re-prioritise future military acquisitions to include capabilities that can offer high calibration

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potential. As seen in Uri and Balakot, the use of Special Forces and air power offered the advantages of secrecy and surprise, flexibility of employment and quick disengagement, calibration of force to minimise collateral damage, and a relatively lower risk of escalation. In

fact, they even offered Pakistan the option to deny that such action had taken place at all, thus freeing itself of the burden of response.

To successfully defeat and deter Pakistan's strategy of continued use of terrorism to bleed India, the Indian military has to alter its style of application of conventional force. The more options military planners can find to fit these new circumstances, the greater the chance of success in forcing a change in Pakistan's behaviour. These actions will be required repeatedly since raising costs cannot be a one-action exercise. The objective will have to be the denying cross-border terrorism as a low-cost strategy for Rawalpindi. So, even in 2021's nuclearised environment, the use of force is possible—it will only have to be applied differently than how it was done in 1971.

Source: [http://www.ipcs.org/comm\\_select.php?articleNo=5799](http://www.ipcs.org/comm_select.php?articleNo=5799), 14 December 2021.

**OPINION – Desmond Tutu**

**Joe Biden should End the US Pretence over Israel's 'Secret' Nuclear Weapons**

Every recent US administration has performed a perverse ritual as it has come into the office. All have agreed to undermine US law by signing secret letters stipulating they will not acknowledge something everyone knows: that Israel has a nuclear weapons arsenal. Part of the reason for this is to stop people from focusing on Israel's capacity to turn dozens of cities to dust. This failure to face up to the threat posed by Israel's horrific arsenal gives its PM Netanyahu, a sense of power and impunity, allowing Israel to dictate terms to others.

But one other effect of the US administration's ostrich approach is that it avoids invoking the US's own laws, which call for an end to taxpayer largesse for nuclear weapons proliferators.

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**Israel in fact is a multiple nuclear weapons proliferator. There is overwhelming evidence that it offered to sell the apartheid regime in South Africa nuclear weapons in the 1970s and even conducted a joint nuclear test. The US government tried to cover up these facts.**

proliferator. There is overwhelming evidence that it offered to sell the apartheid regime in South Africa nuclear weapons in the 1970s and even conducted a joint nuclear test. The US government tried to cover up these facts. Additionally, it has never signed the nuclear non-proliferation treaty. Yet the US and Israeli governments pushed for the invasion of Iraq based on lies about coming mushroom clouds. As Israeli nuclear whistleblower, Mordechai Vanunu said: the nuclear weapons were not in Iraq – they are in Israel.

Amendments by former Senators Symington and Glenn to the Foreign Assistance Act ban US economic and military assistance to nuclear proliferators and countries that acquire nuclear weapons. While president, Jimmy Carter invoked such provisions against India and Pakistan. But no president has done so with regard to Israel. Quite the contrary. There has been an oral agreement since President Richard Nixon to accept Israel's "nuclear ambiguity" – effectively to allow Israel the power that comes with nuclear weapons without the responsibility. And since President Bill Clinton, according to the

New Yorker magazine, there have been these secret letters. US presidents and politicians have refused to acknowledge that Israel has nuclear weapons even though the law offers an exemption that would allow the funding to continue if the president certified to

Congress that aid to a proliferator would be a vital US interest.

Israel's per capita gross domestic product is comparable with that of Britain. Nevertheless, US taxpayer funds to Israel exceed that of any other country. Adjusted for inflation, the publicly known amount over the years is now approaching \$300bn. This farce should end. The US government should uphold its laws and cut off funding to Israel

because of its acquisition and proliferation of nuclear weapons.

The incoming Biden administration should forthrightly acknowledge Israel as a leading state sponsor of nuclear proliferation in the Middle East and properly implement US law. Other governments – in particular South Africa's – should insist on the rule of law and for meaningful disarmament, and immediately urge the US government in the strongest possible terms to act.

Apartheid was horrible in South Africa and it's horrible when Israel practises its own form of apartheid against the Palestinians, with checkpoints and a system of oppressive policies. Indeed another US statute, the Leahy law, prohibits US military aid to governments that systematically violate human rights.

It's quite possible that one of the reasons that Israel's version of apartheid has outlived South Africa's is that Israel has managed to maintain its oppressive system using not just the guns of soldiers, but also by keeping this nuclear gun pointed at the heads of millions. The solution for this is not for Palestinians and other Arabs to try to attain such weapons. The solution is peace, justice, and disarmament. South Africa learned that it could only have real peace and justice by having the truth that would lead to reconciliation. But none of those will come unless the truth is faced squarely – and there are few truths more critical to face than a nuclear weapons arsenal in the hands of an apartheid government.

Source: <https://www.middleeastmonitor.com/20211227-joe-biden-should-end-the-us-pretence-over-israels-secret-nuclear-weapons/>, 27 December 2021.

**OPINION – Mohammad Javad Mousavizadeh**

**Why Biden Needs to Salvage the Iran Nuclear Deal**

United States President Joe Biden made repeated statements on Iran during his candidacy in the presidential election campaign. In addition, he took new stances on the Iran case as one of the most important issues of U.S. foreign affairs.

Unlike former U.S. President Donald Trump's attitude, he has prioritized consulting with the U.S. allies, especially European countries, about Iran. The unilateral decision of Trump about Iran has faced strong criticism from U.S. allies. The former president withdrew the country from Iran's nuclear deal, known as the JCPOA, that was signed between Iran and major countries in 2015. European countries understood the dangerous consequences of removing the JCPOA, and the E3 leaders have tried to protect the agreement since 2018. In fact, Trump's withdrawal permitted Iran to enrich uranium to 60% purity. Some observers believe 90% purity is needed to make nuclear weapons, and Iran's nuclear program is at the most advanced point ever

for obtaining the ability to produce atomic weapons.

**Biden Opposes or Not?** Clearly, the Biden administration has been a strong opponent of Trump's withdrawal from the JCPOA. However, his advisors' team believes that the deal was working and tearing it down was a catastrophic decision by Trump. So, Biden needs negotiations with Iran to stop Iran's nuclear advances by reviving the deal, which his administration has made a centerpiece of his agenda.

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hobbled Iran's economy. In addition, the Iranian rial is now at its lowest price since the Islamic Revolution in 1979. So, the country needs to relieve sanctions to recover its situation.

Nonetheless, the negotiations between the U.S. and Iran to salvage the nuclear deal commenced after Biden came to office in January 2021, but the process stalled as Iran's presidential election took place in June. Finally, after months, the diplomatic marathon between Iran and world powers has started recently in Vienna to salvage the JCPOA. However, the new delegation of Iran under Ebrahim Raisi's administration has put new proposals on the table that have been incompatible with the 2015 pact and the six previous talks between the Western countries with Iran's former negotiators under former Iranian President Hassan Rouhani's administration.

Moreover, unlike the former administration in Iran, Raisi's foreign policy advisors are in line with Tehran's anti-American ideology that formed after the Islamic Revolution in 1979. British, German and French diplomats who took part in the Vienna talks said in a statement that they were disappointed and worried after evaluating Iran's new proposals because Iran has backed down from almost all the agreements reached in the previous rounds of negotiations. Also, Iran has demanded fundamental alterations to the final text. Iran's proposals expose the severe divide in the two sides' views. Some also argue that Iran is presenting the maximum demands to achieve the minimum demands; simultaneously, the country is dragging out diplomatic achievement in talks to advance its nuclear program.

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**After a defeat in Afghanistan that was criticized by both the left and the right in U.S. politics, some analysts believe that the Biden administration needs a foreign policy achievement, and in this regard, reviving the JCPOA could be reachable if the two sides show more flexibility in the Vienna talks. Restoring the deal could also reduce tension in the Middle East and prevent a significant war.**

For instance, Iran had demanded a guarantee from Biden that the next U.S. administration will honor the deal, but American politicians have made it clear that the JCPOA is not a treaty ratified by the U.S. Senate, and Biden cannot make such a guarantee. It seems now Iranian negotiators have brought other demands to the table.

**The Israel Factor:** Although there were no positive signals after recent talks, the two sides have no choice but to reach a diplomatic agreement, even an interim deal, because Israel would use failing talks as an excuse to carry out its threats and attack Iran nuclear facilities. Israel has recently accelerated its plans to strike Iran and threatened clandestine attacks on the country. In an interview with the Walla news website, Israel Defense Forces Chief of Staff Lt. Gen. Aviv Kochavi said that preparations for possible strikes on Iran are being intensified. However, he added that "a significant chunk of the boost to the defense budget, as was recently agreed, was intended" to minimize the "Iranian presence in the Middle East."

Notably, the U.S. government – considering its departure policy from the Middle East and the reduction of its military forces in the region – cannot consider another military crisis. On the contrary, if an agreement is not reached, a military conflict between the two sides could occur. In this situation, the U.S., as a close ally of Israel, will be pressured to intervene in the military conflict to help Israel. And this is not a favorable situation for the Biden administration. In addition, the world will not be able to tolerate another significant war.

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Although Israel is not privy to the secret negotiations, its efforts to reach out diplomatically with the U.S. and European countries is an influential factor in the conclusion of the talks. Moreover, Israel's threats could amount to leverage

against Iran to stop Tehran's nuclear advances during negotiations. Still, it will not be smooth sailing. The strategy of the maximum pressure left over from Trump's policies has not successfully collapsed Iran's resistance. As a result, according to some reports, Biden has agreed to evaluate other options against Iran if diplomacy fails.

Recently, Iran has signaled its interest in a compromise over monitoring its nuclear program amid negotiations and reports of new uranium enrichment efforts. The IAEA reported that Iran gave the IAEA permission to replace the monitoring system in a nuclear site in the Iranian city of Karaj that was destroyed when the site was sabotaged in June this year. Iran's new flexibility in allowing access to its sites could be a positive signal in reaching a deal.

Iran has also repeatedly stated that removal of all nuclear and non-nuclear sanctions is required for it to comply with the JCPOA. It remains to be seen if Washington is ready to lift some of the crippling sanctions against Iran to reach a deal, or if Biden will allow Tehran to enrich higher-grade uranium and increase the possibility of a military crisis. Only time will tell.

Source: <https://www.dailysabah.com/opinion/oped/why-biden-needs-to-salvage-the-iran-nuclear-deal>, 17 December 2021.

**OPINION – David Ignatius**

**The Right Plan B for the Moribund Iran Nuclear Deal**

For a Biden administration that has hit an impasse in trying to contain Iran's surging nuclear program, offered a lesson in what can actually make Tehran back down — the threat of global condemnation by the IAEA.

Iran dithered for months about reinstalling IAEA surveillance cameras that it removed from a centrifuge plant in Karaj in June. Then the United States signaled it might call a special meeting of the IAEA board of governors to discuss Iranian noncompliance and — poof! — Tehran announced that the IAEA can replace its cameras. (The IAEA should demand control of the cameras' recordings, too!)

The Karaj cameras are a tiny step, but this case suggests a diplomatic "Plan B" for the United States in the dangerous deadlock in the Vienna talks to revive the 2015 nuclear deal. The Joint Comprehensive Plan of Action, known as the JCPOA, may be dead — strangled by Donald Trump and the Iranians. A new forum for nuclear pressure may be the IAEA, whose board includes Russia and China and which could refer some Iranian nuclear issues to the U.N. Security Council.

Here's a starting suggestion: The Biden administration should ask the IAEA board to rule in four cases of "Possible Military Dimensions," or PMD, in Iran's nuclear activities. Three involve uranium particles discovered at sites Iran never

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Adding a new IAEA initiative to the stalled JCPOA-revival talks would put the emphasis back where it belongs — on Iran's secretive nuclear program. Right now, Iran is using the talks as a propaganda forum to demand compensation for Trump's 2018 decision to abandon the JCPOA. Trump's move was idiotic, even in the view of many senior Israeli officials, but that shouldn't allow Iran to race toward the nuclear-weapons threshold.

The agonizing reality is that without JCPOA limits, Iran is nearing breakout capability. It resumed 20 percent enrichment in January, breaking the JCPOA cap; it began enriching at 60 percent in April, and Iranian officials have said they're considering enrichment at 90 percent bomb-grade level. Iran is using advanced centrifuges and the deep bunker at Fordow, both of which were excluded by the JCPOA.

Another ominous step came in February, when Iran began producing uranium metal plates, which can be used in the core of a nuclear bomb, again in violation of JCPOA limits. British, French and German officials warned: "Iran has no credible civilian use for uranium metal. The production of uranium metal has potentially grave military implications." The bottom line: By Israeli estimates, Iran has enough material for three bombs and is less than a month from completing the enrichment of that fuel, sources tell me. Building a weapon would take another 18 months

to two years, the Israelis reckon — but that's still a very short fuse.

President Biden wants to rebuild the guardrails Trump destroyed, but so far he's stuck in neutral. He told Israeli Prime Minister Naftali Bennett in August: "We're putting diplomacy first and seeing where that takes us. But if diplomacy fails, we're ready to turn to other options." The problem is that Iran clearly isn't deterred by Biden's gently phrased threat.

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The United States' inability to deter Iran is worrying beyond enrichment levels or uranium plates. Deterrence is about credibility — and that unfortunately is sagging with the Biden administration. The chaotic withdrawal from Afghanistan was harmful. So is the perception the United States is retreating in the Middle East.

Sensing American weakness, Russia is pushing at the Ukraine border and China is threatening Taiwan — even as Iran is accelerating its nuclear program. It's all part of the same story.

The United States is lucky to have good allies that can help in moments of peril. Israel, often described an "an unsinkable aircraft carrier"

for the United States in the Middle East, has become the backstop for Saudi Arabia, the United Arab Emirates and other gulf countries against Iran. In Asia, countries worried about a rising China can look to the growing military power of the United States' Quad partners, Australia, India and Japan. But that doesn't make up for Uncle Sam.

The IAEA can't limit enrichment or other activities covered by the JCPOA. But it may be the right backstop now on Iran. It's a global organization, chartered by the United Nations to deal with nonproliferation issues. It's backed by Russia and

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China as well as the United States and its allies. Referring Iranian noncompliance to the Security Council could jumpstart a new effort to constrain Iranian nuclear-weapons development. That effort began (with Russian and Chinese support) in the now-eneffebled JCPOA. Maybe it's time for a rebranding. The United States needs to redraw the line on Iran's nuclear program. The best way to begin may be an aggressive campaign through the international watchdog, the IAEA.

Source: <https://www.washingtonpost.com/opinions/2021/12/16/right-plan-b-moribund-iran-nuclear-deal/>, 16 December 2021.

**OPINION – Ramin Jahanbegloo**

**Testing the Red Lines in the Iran Nuclear Talks**

Months after Iran's presidential elections in June, multilateral nuclear talks have started once again in Vienna with a new Iranian negotiating team. Iran's chief negotiator Ali Bagheri Kani reportedly introduced demands that in effect cancelled understandings reached in previous rounds of negotiations in June concerning a renewed JCPOA. As a matter of fact, a report by a nonpartisan organisation points out that Iran began exceeding JCPOA limits on both its allowed stockpile and level of enrichment a year after the Donald Trump administration withdrew from the deal in May 2018 and began re-imposing economic sanctions.

**What Iran and the U.S. Say:** For the time being, the new round of Vienna talks seems to have no positive outcomes. Both sides are completely intransigent and want the other party to back down and make concessions before they will move. Iran insists on all sanctions being lifted, while the Americans are asking Iran to return to reduced enrichment of uranium and accept full IAEA inspections. According to some analysts, the current impasse is not due to two factors. First and foremost, Iran is playing the North Korean card, while moving toward leaving the economic

**According to some analysts, the current impasse is not due to two factors. First and foremost, Iran is playing the North Korean card, while moving toward leaving the economic sphere of the United States and Europe and joining China and Russia. On the other hand, the Americans do not have a very clear direction for Iran's future.**

sphere of the United States and Europe and joining China and Russia. On the other hand, the Americans do not have a very clear direction for Iran's future, especially because the U.S. President, Joe Biden, is refusing to commit his administration to lift sanctions on Iran during the remaining years of his presidency.

**Europe's Line:** As for the Europeans, thus far they have been almost non-existent in these new talks. Even so, Enrique Mora, Deputy Secretary General/Political Director, European External Action Service, who coordinates talks between Tehran and six powers on reviving a 2015 nuclear pact seemed to be very positive about the way the negotiations had started. According to him: "the P4+1 must "fully take into account" the political sensibilities of the new Iranian administration", while the Iranian delegation has recognised "the work we have done in the past six rounds and the fact that we will build on this work going ahead".

Despite Mr. Mora's positive remarks, it seems that the Europeans are trying to salvage the deal as quickly as possible, as Iran ramps up uranium enrichment. But at the same time, they seem not to be forceful mediators in these talks, given that there are the Chinese and the Russians, who are in favour of the Iranians.

**Chinese Remarks:** The Chinese comments about the "nuclear hypocrisy" of the West suggested that it is sympathetic to the fundamental arguments of the Iranian negotiators, that has been dealt a fundamental injustice by the U.S. — an injustice in which the Europeans have been complicit. Unsurprisingly, while the Iranian negotiating team believes that time is running out for the U.S., the U.S. Secretary of State, Antony Blinken, has warned Iran that "the hour is getting very late" to return to the nuclear deal. However, he also added that "it is not too late for Iran to reverse course to save the deal aimed at curbing Tehran's nuclear capabilities, in exchange for an easing of sanctions from Washington".



**Tehran's Stand, Israel's View:** All in all, the new Iran nuclear deal presents itself as a path paved with uncertainties. It looks like Iran has headed into the present nuclear talks in Vienna armed with a new general nuclear strategy. Indeed, Iran's Supreme Leader Ayatollah Ali Khamenei's demands have consistently centered on full sanctions removal. But, at the same time, the newly elected government headed by Ebrahim Raisi has repeatedly proclaimed that nothing is agreed on unless everything has been agreed on. It seems that the Raisi government is testing international red lines, and trying to leverage Iran's expanding nuclear programme to produce more concessions from the international community, without paying significant costs. As a result, there is an increasing pessimism on whether the Iran nuclear deal can be revived.

The fact that Iran has begun using advanced centrifuges to pursue 20% uranium enrichment at the underground Fordow facility is making the IAEA very nervous. Meanwhile, Israeli officials have been pressing European governments and the U.S. on a real Iranian nuclear threat. However, according to the former Israeli Defence Minister, Moshe Ya'alon, "The main mistake of the last decade was to quit the deal during the Trump administration." However, let us not forget that the Israeli Prime Minister, Naftali Bennet, declared openly in late November that, "The mistake we made after the first nuclear deal in 2015 will not repeat itself." He recently asked Washington to start using "a different toolkit against Iran's forward gallop in the enrichment sphere".

No doubt, Israel continues to see the Islamic Republic of Iran as an existential threat. From the Israeli point of view, this threat can be justified notably by Iran's current hegemonic military drive

into the Levant. All this does not necessarily mean that Israel has a plan to act militarily against Iran, but the situation is far from encouraging for the Israelis.

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Whatever it may be, the key question remains this: whether the nuclear negotiations in Vienna could become substantive or collapse with no results. No one has the answer to this question yet. But one thing is certain: Iran and the U.S. will both fail if they try to corner each other

with a "Trumpian" attitude. After all, if the JCPOA is a complex affair, it is because diplomacy is all about complexity management.

*Source: <https://www.thehindu.com/opinion/op-ed/testing-the-red-lines-in-the-iran-nuclear-talks/article37992584.ece>, 20 December 2021.*

**OPINION – Leonor Tomero**

**US-Russia Strategic Stability Dialogue: Purpose, Progress, Challenges and Opportunities**

As the two countries that possess 90% of nuclear weapons worldwide and have come perilously close to nuclear war several times over the last six decades, the United States and Russia bear a particular responsibility to maintain and enhance strategic stability. Strategic stability means arms race stability—whereby neither side has an incentive to seek or establish primacy (or break-out capability) regardless of technological

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advances. It also consists of crisis stability, whereby neither side has an incentive to escalate a crisis and risks of miscalculation are reduced. The latest Russian military build-up on the Ukrainian border, following Russia's 2014 annexation of Crimea and other hostile actions toward Ukraine, undermines regional and strategic stability. This looming danger to international

security makes the U.S.-Russia Strategic Stability Dialogue (SSD) both more difficult and more important.

***A War That ‘Must Never Be Fought’: Purpose of Strategic Stability Dialogue:*** The SSD’s primary purpose is to prevent nuclear war, which, as presidents Joe Biden and Vladimir Putin reiterated at their June summit, “cannot be won and must never be fought.” Over the past 60 years, the United States has buttressed nuclear deterrence with strategic stability through arms control negotiations. These talks have delivered transformational benefit to U.S. national defense by limiting—and in time reducing—the Soviet/Russian nuclear threat. This powerful defense tool is embodied today by the SSD, which the two presidents touched on in their Dec. 7 meeting via video.

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***Progress Under the Biden Administration:***

Biden took office in January 2021 focused on pursuing arms control and reducing nuclear risks as a key contribution to national security. One of his first decisions after his inauguration was to seek a five-year extension of the U.S.-Russian New START treaty, the maximum allowed under the terms of the agreement. A rapid exchange of letters with Russia and the approval of its lower house of parliament, the State Duma, led to extension on Feb. 3—just two days before the treaty’s expiration.

This early win set the tone for Biden’s nuclear weapons policy. Secretary of State Antony Blinken said at the time that “the New START Treaty extension is only the beginning of our efforts to address 21st century security challenges” and that the U.S. would use the five years provided by the extension “to pursue with the Russian Federation, in consultation with Congress and U.S. allies and partners, arms control that addresses all of its nuclear weapons.” National Security Advisor Jake Sullivan took a broader view, calling

the treaty’s extension “the beginning of ... serious, sustained negotiations around a whole set of nuclear challenges and threats that fall outside of the New START agreement, as well as other emerging security challenges.”

The Joint Statement by the presidents in June has allowed Washington and Moscow to begin discussions to reduce the risk of armed conflicts and the threat of nuclear war, including laying the groundwork for future arms control and risk reduction measures. The SSD includes regular discussions not only on nuclear deterrence but also on the risks of emerging technologies such as space and cyber technologies that could affect arms race or crisis stability and thereby increase the risk of escalation and conflict leading to nuclear war. SSD talks were held in July and September. Both meetings reflected the seriousness of the U.S. and Russian

commitment to dialogue and reducing nuclear risks, with delegations led by senior officials on both sides—Deputy Secretary of State Wendy Sherman for the U.S. and Deputy Foreign Minister Sergei Ryabkov for Russia. The September meeting resulted in agreement to create two working groups, on Principles and Objectives for Future Arms Control and on Capabilities and Actions with Strategic Effects. According to Russia’s Kommersant daily, another meeting is to be held in Geneva this month.<sup>1</sup>

***Challenges and Opportunities:*** The way forward is difficult and complex. Here are just some of the hard challenges ahead, some of which are long-standing problems, while other more recent developments pose new challenges to strategic stability:

1. Russia’s international aggression—both in Ukraine and in Georgia—and history of arms control violations remain major obstacles.
2. Alignment with U.S. allies, particularly NATO

allies and partners, is vital to meeting U.S. SSD objectives. A U.S.-Russia conflict would directly impact regional security, and European allies have generally been strong supporters of effective arms control and confidence-building measures that hold Russia accountable and reduce the risk of nuclear conflict. In addition, Russia's large stockpile of non-strategic nuclear weapons and its new nuclear ground-launched nuclear cruise missile deployed in violation of the now-defunct INF Treaty threaten NATO allies in Europe. Further, on Dec. 10, Ryabkov noted that, for Russia, one set of "actions with strategic effects" that should be on the SSD's agenda is, in TASS's translation, "security guarantees for Russia through the non-advancement of NATO to the east."

3. The Trump Administration's withdrawal from the Open Skies and INF treaties further politicized and complicated prospects for nuclear arms control. The decisions have exacerbated the difficult task of achieving a two-thirds majority in the Senate (required for bilateral treaties) and nuclear arms control as an important national security tool has lost strong bipartisan champions.

4. The U.S. Senate has made clear it expects arms control progress to include weapons outside the scope of New START, including Russia's non-strategic nuclear weapons. Further, Russia is developing and deploying novel nuclear systems. These include new heavy ICBMs, long-range hypersonic nuclear weapons, and development of systems that would not be constrained by New START limits such as nuclear cruise missiles and an undersea torpedo.

5. China's significant increase of its number of nuclear weapons complicates U.S.-Russian strategic stability. As revealed in open-source analysis and imagery, China is pursuing a rapid

acceleration and increase in its number of nuclear weapon silos, in addition to investing in more survivable nuclear platforms, including mobile ICBMs and ballistic missile submarines.

6. U.S. missile defense remains a key concern for Russia due to the perceived impact on strategic stability and remains a politically difficult issue in the United States. Missile defense, particularly any future constraints, has long been a politically complex issue even as the New START preamble recognized the interrelationship between offensive and defensive forces.

7. The COVID-19 pandemic presents ongoing logistical challenges, including having forced a pause in in-person New START inspections.

Addressing some of these challenges, U.S. Under Secretary for Arms Control and International Security Bonnie Jenkins in September outlined "several key concepts" for addressing "evolving threats" with Russia: "First, we will look to capture new kinds of intercontinental-range nuclear delivery systems. Second, we will seek to address all nuclear warheads, including those which have not been limited previously, like so-called non-strategic nuclear weapons. Third, we will seek to retain limits on Russian intercontinental-range ballistic missile, submarine-launched ballistic missiles and heavy bombers equipped for nuclear armaments after New START expires in 2026."

Technological changes can exacerbate the risk of strategic instability and require focused dialogue. These include emerging long-range hypersonic weapons that can reach strategic targets, possible cyberattacks against strategic assets or with strategic implications and weapons that threaten space assets—including some that produce space debris, further threatening other space assets or the use of certain orbits. Following Russia's Nov. 15 anti-satellite test, which created

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at least 1,500 pieces of trackable debris, U.S. Space Command chief Gen. James Dickinson warned that “Russia continues to pursue counterspace weapon systems that undermine strategic stability.” Many of these threats are complicated, particularly in the cyber and space domains, by difficulties of attribution, as well as reversible versus irreversible attacks, increasing the risk of miscalculation or misperception.

A serious and good-faith dialogue with Russia about these risks to strategic stability (as well as dialogue with our allies and China) is necessary to understand the changing nature of those risks and the direction new arms races may take and to reduce the risk of unintended escalation.

SSD success will require complementary measures for effective arms control and risk reduction. Sustained investment in technological innovation at the national laboratories—as well as novel, resilient and cost-effective applications of commercial technologies—can play a key role in enhancing strategic stability. Innovation for deterrence resilience is a necessary complement to nuclear force modernization. In addition, application of new capabilities and architectures can add resilience to the nuclear enterprise, make nuclear forces more survivable and increase decision time in a crisis. As another example, increased investment in the national laboratories and use of block chain for inventory control could result in new, reliable verification mechanisms for follow-on arms control agreements. Use of big data analytics for rapid change detection and use of commercial space capabilities provide new opportunities for earlier detection and time for resolving potential problems ahead of a crisis or conflict.

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Source: <https://www.russiamatters.org/analysis/us-russia-strategic-stability-dialogue-purpose-progress-challenges-and-opportunities>, 15 December 2021.

#### OPINION – Sergey Ryabkov

#### Russia’s Nonproliferation Policy and Global Strategic Stability

While the weight of accumulated problems and troubling instabilities in strategic sphere is significant, relations among nuclear powers are very far from being well-tempered. The situation is heavily overshadowed by disintegration of the arms control architecture, mostly due to the destructive course of the previous U.S. Administration. The New START Treaty is practically the last surviving pillar. Active diplomacy has provided some glimpse of hope earlier in 2021. The understandings reached by the Presidents of Russia and the U.S. opened a window of opportunity for constructive interaction of two major stewards of nuclear arsenals.

First, the two leaders agreed to extend the New START. They also reconfirmed in a Joint Statement the principle that nuclear war cannot be won and should never be fought. They highlighted the priority to reduce the risk of any armed conflict between our countries. These are very important and long-awaited steps that Russia has been

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persistently advocating for. It is also noteworthy to mention that Russia and China have also publicly at the highest level come out in favor of the inadmissibility of nuclear war, as well as of any armed conflict involving nuclear powers. Now, we believe it is high time for the whole P5 to jointly reiterate this formula. We would see it as a significant political message both to each other and to international community.

The above-mentioned steps on a bilateral U.S.-Russia track have created a basis for further endeavors. A necessary momentum was achieved, as President Putin and President Biden at their June meeting in Geneva instructed their respective interagency teams to resume the SSD. The Presidents expect this dialogue to be integrated, deliberate and robust. The sides will seek to lay the groundwork for future arms control and risk reduction measures. This means that we have to address a broad spectrum of intertwined issues on strategic agenda in a holistic way, including new and emerging challenges to the security of our countries. The task is difficult and time-consuming, but this should not prevent us from making all possible effort.

We have just started. Two bilateral interagency meetings were held. They were mainly about identifying “default settings” and actual structure of the dialogue. As a first substantial step, we initiated discussions on our respective threat perceptions and security concerns. Next, it would be logical to outline possible ways to address these concerns on a mutually acceptable basis, including through arms control and risk reductions measures. In terms of defining common goals for the interaction both delegations actually agree that

this process should serve to stabilize bilateral relations in the strategic area, ensure predictability, prevent arms race, build up arms control, and reduce risks of armed conflicts.

With that, it is yet to be proved by practical steps that the U.S. is ready to change its destabilizing course and pursue the above-mentioned ambitious goals through interaction on an equal basis. It remains to be seen whether the U.S. is actually ready to take into account our legitimate security interests and concerns.

We tend to believe that there is a chance for pragmatic approach to prevail and for the U.S. to engage with Russia in good faith with a view to seek balanced and mutually acceptable solutions. So far, we note the professional and business-like atmosphere at the SSD meetings. As a positive sign we also see the understanding reached on establishing two expert-level Working Groups – on principles and objectives for future arms control and on potentials and actions with strategic effect. On our part, we have presented a vision on how to frame the SSD, and what is desirable to achieve as a result thereof. The underlying idea is to jointly develop a “new security equation” that would cover all factors affecting strategic stability. We want to embrace the

entire spectrum of both nuclear and non-nuclear, offensive and defensive arms with strategic capability.

As for offensive arms, we need to pay particular attention to nuclear and high-precision conventional systems that could be used in a counterforce strike against the territory of the other side with a view to weaken or even neutralize its deterrent. Our strong conviction is that discussions should focus on delivery vehicles and associated

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Speaking of strategic defensive systems, I obviously refer to respective missile defence assets. The principle of inseparable interrelationship between strategic offensive and strategic defensive arms remains to be the crux of the very concept of strategic stability. It is enshrined in the New START Treaty. This is why there is no way to avoid addressing the issue of missile defence in the framework of the "new security equation".

Another indispensable topic is "post-INF dynamics" and possible efforts to mitigate the damage inflicted upon the international security by the U.S. withdrawal from the INF Treaty. We continue to stick to our mutual verifiable moratoria initiative that is designed to ensure restraint and predictability in this area. It is also important to develop common approaches to preventing arms race in outer space and ensuring security of space activities.

The concepts and ideas on the American side, seem to be somewhat immature at this stage due to the ongoing review process initiated by the new Administration with regard to doctrines, postures and strategies. But both delegations believe that in the meantime there is still enough space for discussions.

It is of no surprise that so far the two sides have many discords and opposite views, with only a few points of convergence. But it is just the beginning of the journey. If political will and readiness for creative diplomacy prevail, then there are no unbridgeable gaps. The NPT remains the cornerstone and an integral element of the international security system. More than half of a century of the Treaty existence is, in our view,

by itself a strong evidence of stability and effectiveness of the NPT. During this period the Treaty has demonstrated that it serves the interests of all Participating States, both nuclear and non-nuclear.

As a State Party to the NPT and one of its depositories, Russia fulfills its obligations and confirms its strong and unwavering support for the Treaty. In particular, Russia is fully committed to the goal of nuclear disarmament. It has been consistently reducing its nuclear arsenal and diminishing the role of nuclear weapons in its national defense policy. We intend to continue working in that direction, as well as to maintain a balance between mastering "the peaceful

atom" and strengthening the nuclear nonproliferation regime. In this context Russia provides support and shares its extensive experience in the area of peaceful nuclear cooperation with other Participating States, as well as contributes to strengthening of the IAEA safeguards system, which ensure reliable verification that States fulfill their NPT obligations.

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We are approaching the 10th NPT Review Conference .... In recent years, the NPT regime has been undergoing serious tests and challenges. On the one hand, countries that continue to stand on extreme anti-nuclear positions are reinforcing their disarmament rhetoric without taking into account the on-ground situation in the area of international security. On the other hand, the existing system of nonproliferation and arms control treaties and agreements is being a target for dismantlement or destruction efforts. The INF Treaty has been destroyed by the U.S. The future of the JCPOA on the Iranian nuclear programme remains unclear. We see again and again shamelessly open attempts to use the NPT as an instrument to exert political pressure or settle political scores with

States.

This year marks the 25th anniversary since the CTBT was opened for signature. Nevertheless, the Treaty has not yet entered into force, and we are concerned by not only the lack of any tangible progress in this process but even by the serious deterioration of the situation. The responsibility lies with those eight states on the so-called "List of 44 countries" whose ratification and/or signature are necessary for the CTBT to enter into force. The most destructive role in this context, again, plays the U.S., which has become the only state that has officially refused to ratify the CTBT.

We recall that Russia signed the CTBT in 1996 and ratified this Treaty in 2000, and we are working hard on making it truly universal both in bilateral and multilateral formats. As you may know the construction of the Russian segment of the international monitoring system nears completion. To date, 29 out of 32 stations of monitoring in the Russian segment of the system have been certified.

The situation around the previously rather non-contentious issue the establishment of NWFZ – becomes more complicated. The additional protocols to the NWFZ Treaties traditionally contain binding assurances that prevent the use or threat of use by nuclear states of nuclear weapons against States – Parties to particular zone (so-called negative assurances). At the same time, nuclear states, with the exception of China, make traditional reservations when signing or ratifying protocols to the Treaties. The pressure on the nuclear weapon states to renounce the above-mentioned reservations has sharply increased in recent years.

All reservations are made by Russia when signing the additional protocols in full conformity with the "letter and spirit" of the NPT and do not contradict globally shared norms of international law. They only clarify that the security assurances given to the States Parties to the NWFZ treaties will not be valid in case of any misuse of the relevant

provisions of the Treaties, as well as when these provisions are misused by other nuclear powers.

Now as a consequence of the recently established AUKUS partnership we are facing a new risk of developing of nuclear infrastructure of nuclear weapon states in a State Party to the Rarotonga Treaty. This case became for us a clear confirmation of our political understanding that certain reservations to the Protocols to the Treaties on Nuclear Free Zones are fully justified.

Another major challenge to the nonproliferation regime and a key agenda point for the upcoming

10th NPT Review Conference is the issue of establishment of a Middle East zone free of nuclear and all other WMD and their means of delivery (WMDFZ). The resolution on the Middle East, adopted in 1995 at the NPT Review and Extension Conference, is viewed by the Arab states as part of a package solution,

another element of which is the indefinite extension of the NPT.

In December 2018, the UN General Assembly, on the initiative of the Arab states, adopted a respective decision to convene such a Conference. Russia supported this decision. The 2019 conference on a WMD-free zone became a first practical step in many years towards the establishment of a such zone. We took part in this Conference as an observer. The next step was taken shortly. The second Conference on WMD free zone was held in New York from November 29 to December 3, 2021, where Russia participated as an observer at the meeting.

We note with regret that the negative position of the United States and Israel on the issue of establishment of WMDFZ remains unchanged. This will undoubtedly have a negative impact on the discussion of the topic during the NPT review process. We remember well that the WMDFZ issue became a stumbling point at the drafting process of the final document of the 2015 NPT Review Conference.

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Russia has always advocated the settlement of any regional challenges to the nonproliferation regime exclusively through diplomatic means, and on the basis of the NPT. It is from this position that we consider the nuclear problem of the Korean Peninsula. We believe that

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For many years Russia has been providing its unwavering support to the IAEA as the only international organization with the authority and the necessary technical capabilities to implement verification measures within the scope of the NPT. However, the situation here is also far from what we would like to see. Unfortunately, the roots of subjectivity have sneaked into the Agency. The Syrian issue at the IAEA may serve as showcase for this. Allegations against this state were raised without any clear evidence but only on the basis of statements justified by “highly likely” and “very likely”. Nothing in particular, we see that the incident with disappearance in Japan of weapons-grade plutonium has been neglected and the IAEA makes public very controversial broader conclusions for countries where the U.S. nuclear weapons are located.

In this context we are seriously concerned by the ongoing comprehensive reform of the IAEA’s safeguards system. We believe it may enforce and enlarge the already existing subjectivity in the Agency’s verification mechanism. Under this complicated and highly conflicting conditions, it is important for all States

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to look at the international nonproliferation and arms control agenda for topics that can unite, but in no way split, the States Parties to the Treaty. This is highly relevant to the upcoming 10th NPT Review Conference. We will work hard and in cooperative manner to draft and adopt

a final document of the Review Conference.

*Source: <https://moderndiplomacy.eu/2021/12/27/russias-nonproliferation-policy-and-global-strategic-stability/>, 27 December 2021.*

**OPINION – Peter Hussy**

**Biden should Not Embrace New Nuclear Policies**

Nearly 700 scientists and engineers, some of them Nobel laureates, have written a letter to President Joe Biden urging the United States to adopt four new nuclear policies. The letter asks that the United States and the president pledge not to use nuclear weapons first; receive approval from another senior U.S. government official before using nuclear weapons; unilaterally reduce its deployed nuclear weapons by one-third, from 1550 to 1,000; and stop funding a new land-based missile to replace the current Minuteman III ICBM force that was deployed in 1970. These steps, the authors say, “will slow the spiraling nuclear arms race with Russia and China” and advance “steps towards disarmament” by making arms control negotiations more credible.

There are four serious flaws in the proposal. Such a policy would allow Russian and Chinese nuclear forces to remain in a sanctuary free from attack. It would also allow China and Russia to attack the United States or its allies with a High-Altitude Electromagnetic Pulse (EMP), cyber, or chemical/



biological attack—all capable of killing tens of millions of Americans—without fear of nuclear retaliation. Even worse, it would give the United States' nuclear-armed adversaries an incentive to get in the first nuclear punch, especially if the United States and its allies came to rely upon our adversaries' similar pledge not to use nuclear weapons first.

The second idea is equally worrisome but also unnecessary. Every nuclear crisis faced by a U.S. president, whether President John Kennedy over Belin or Cuba, President Richard Nixon in the Middle East war between Egypt and Israel, or President Ronald Reagan over Soviet fears that a military exercise was a prelude to an attack, has involved the U.S. president asking his closest advisers and national security officials for their best advice.

Each president relied upon different high-ranking officials. The idea that the president needs an affirmative vote from a senior U.S. official makes no sense. What if the vote is contrary to what the president wants to do? Given the constraints already inherent in a crisis, why would we encumber the president with more obstacles to necessary action, whatever that action may be? And furthermore, is the president's authority to be changed by law? And who enforces this new law? Would it prevent necessary action from being taken? The idea is without merit and dangerous.

But it is the third idea that really is reckless. Unilaterally reducing U.S. strategic nuclear weapons to less than 1,000 and eliminating ICBMs also eliminates the ability of the United

States to maintain a hedge if it might suddenly be required to build up beyond the 1,550 nuclear weapons allowed by the New START Treaty. Every president that has endorsed an arms control agreement has also endorsed a central capability of having a hedge or responsive capability to build up in the case of a strategic environment deteriorating.

With only 192 sea-launched ballistic missiles and zero land-based ICBMs, the maximum number of missile warheads the United States could deploy is 1,536—192 missiles each with eight warheads. Adding in the allowed sixty bombers, this number is just marginally above the current level allowed by the New START Treaty. This compares to Russian and Chinese strategic nuclear forces that could easily exceed 5,000 warheads over the next decade under a breakout scenario—or upwards of at least over 3,000 even if in compliance with current arms deals. What is the point of a strategic “balance” that is weighted three or five to one against the United States?

As for the idea of temporarily keeping the Minuteman III around, these ICBMs cannot be given an affordable or effective service life extension program as official U.S. Air Force analysis has proven. The Minuteman III has already gone through a number of life extensions and cannot last longer than 2035 without a \$75 billion upgrade, assuming such an upgrade is technically doable. Each year brings more Minuteman technology that needs replacement, and which is no longer even manufactured. After all, the design is fifty-two years old.

Further, a Minuteman III missile service life

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extension does not enable an ability to overcome adversary missile defenses, cannot be reliably sustained, and will, in fact, cost \$38 billion more than the Ground-Based Strategic Deployment (GBSD) that is slated to replace it. It is true that Minuteman III is already planned to be sustained through 2035, another fifteen years. Those plans are already part of the program of record to allow the finely tuned replacement starting in roughly 2029, with the GBSD land-based missile. The Minuteman III technically will not meet the deterrent requirements as certified by the United States Strategic Command.

It is also completely unfounded that senior U.S. military officials concurred that the United States could unilaterally reduce its nuclear forces to less than 1,000 warheads and still maintain deterrence against Russia even if Russia maintained the higher New START level of forces. I have spoken with each of the commanders of U.S. nuclear forces since 2010 when the treaty was signed, and they all have declared they do not and have not supported such a cut of U.S. warhead force levels. For the record, as the National Institute of Public Policy has illustrated in a recent assessment, no unilateral reductions of nuclear forces by the United States have ever resulted in reciprocal Russian behavior. Former senior Office of Secretary of Defense and National Nuclear Security Administration official John Harvey says no such cuts would be endorsed by U.S. military officials unless verified, equal reductions by Russia were also mandated by treaty.

As for an arms race, the United States has no modernized nuclear forces now deployed—the first deployment does not start until 2029. Today, some new U.S. platforms have been built and are being tested, but are years away from deployment. By

comparison, Russia recently announced its nuclear forces are 86-91 percent modernized with twenty-three new types of strategic nuclear forces developed or deployed since 2010. The claim that the United States is leading an arms race is thus nothing short of ludicrous.

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As for unilaterally giving up U.S. land-based ICBMs, China and Russia are both building a combined five new land-based ICBMs, including China's more than 350 new ICBM silos.

Apparently, new Chinese ICBMs are fine, but U.S. ICBMs destabilizing. Opponents of U.S. ICBMs have even declared that China has a strategy to ensure the survivability of its silo-based ICBM systems—Beijing would launch first! Gen. John Hyten, the just-retired vice chairman of the Joint Chiefs of Staff, stated that in his view the silo-based ICBMs in China are indeed first-strike weapons.

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In that case, the ICBMs the United States maintains would be fully available for retaliation in a measured and considered action. The entire basis for the United States having a nuclear triad is that the United

States has sufficient retaliatory capability to continue to deter Russia even if it rides out an attack and loses some of its ICBM forces. The letter's writers also advocate against having U.S. ICBMs on alert. In 1979 and 1980 there were false warnings of a Soviet sea and land missile attack. This was due to a computer chip malfunction when the United States was in the midst of using a training tape. The glitch was soon corrected and has not occurred since. The president was not notified of the false warning and a launch conference was not convened. In fact, the strategic environment has been so stable that for the entire seventy years of the nuclear age no launch conference has ever been convened to determine whether a missile launch somewhere

on earth is headed toward the United States. That is certainly proof positive that the nuclear triad, with its land-based missiles, is indeed the most valuable U.S. deterrent capability we have.

Source: <https://nationalinterest.org/feature/biden-should-not-embrace-new-nuclear-policies-198588>, 27 December 2021.

**NUCLEAR STRATEGY**

**GENERAL**

**Complicit: Nuclear Weapons Spending Increased by \$1.4 Billion in 2020**

\$72.6 billion is how much nine nuclear armed countries spent on their nuclear weapons as the pandemic spread in 2020 and a global treaty banning nuclear weapons took full effect. The report "Complicit: 2020 Global Nuclear Weapons Spending" details the spending of these nine countries on their arsenals, the companies that profited, and the lobbyists hired to keep nuclear weapons in business. This amounts to \$137,666 every minute, and (after adjusting for inflation) represents an increase of \$1.4 billion from last year.

The U.S. spent three times more than the next in line—a whopping \$37.4 billion. China was the only other country crossing the ten billion mark, spending \$10.1 billion. Russia had the third highest spending at \$8 billion, though the U.K.'s \$6.2 billion and the French \$5.7 billion weren't so far behind. India, Israel, Pakistan also each spent over a billion on their arsenals, while North Korea spent \$667 million.

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Why would these countries spend so much, in the midst of the worst global pandemic in a century? The report shows that it's not security interests, or even a resumption of so-called great power competition driving this increased spending, it's business. After digging through thousands of contracts, annual reports and lobby disclosures, the report shows a dozen companies got \$27.7 billion in new and modified contracts to work on nuclear weapons. Those companies then turned

around and spent \$117 million lobbying decision makers to spend more money on defense. And they also spent upwards of \$10 million funding most of the major think tanks that research and write about policy solutions about nuclear weapons. It is time to expose this shady cycle and end this outrageous waste of public funds on weapons of mass destruction. Help us spread the word.

Source: [https://www.icanw.org/complicit\\_nuclear\\_weapons\\_spending\\_increased\\_by\\_1\\_4\\_billion\\_in\\_2020](https://www.icanw.org/complicit_nuclear_weapons_spending_increased_by_1_4_billion_in_2020), 16 December 2021.

**INDIA**

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**India Tests N-Capable Agni-Prime Missile**

India on December 18, successfully tested the new-generation nuclear capable Agni-Prime ballistic missile, which has a strike range from 1,000km to 2,000km, from the Abdul Kalam Island off the coast of Odisha. This was the second test of the

two-stage solid propellant Agni-P missile, which has a dual redundant navigation and guidance system, after the first one on June 28.

The Agni-P missile, the smallest and lightest among the entire Agni series of ballistic missiles, will further bolster India's strategic deterrence capabilities once it is fully operational after a series of "developmental and user trials". The missile, which was launched at 11.06 am, "followed a text book trajectory to meet all mission objectives with high level of accuracy", a DRDO official. "This second flight-test has proven the reliable performance of all the advanced technologies integrated into the system," he added. Both defence minister Rajnath Singh and DRDO chairman Dr G Satheesh Reddy congratulated the team of scientists.

**The Indian military has begun the construction of nuclear-hardened tunnels and armament storage facilities near the country's border with Pakistan and China. Nuclear-hardened facilities ensure that military supplies — which take days to transport to forward posts due to the rugged slopes and terrain in the Himalayas — can be stored on the front line and protected against potential enemy attacks.**

Source: <https://timesofindia.indiatimes.com/india/india-tests-n-capable-agni-prime-missile/articleshow/88365746.cms>, 19 December 2021.

### India Constructing Nuclear-Hardened Facilities on China Border

The Indian military has begun the construction of nuclear-hardened tunnels and armament storage facilities near the country's border with Pakistan and China. Nuclear-hardened facilities ensure that military supplies — which take days to transport to forward posts due to the rugged slopes and terrain in the Himalayas — can be stored on the front line and protected against potential enemy attacks. "Micro-tunneling is the flavor of the time, ensuring hardened defenses." Indian army engineer-in-chief Harpal Singh said, as quoted by Sputnik News. "Nuclear hardened facilities are being developed in forward areas to enhance the capabilities of boots on the ground. In addition to storage facilities, Singh revealed that the country's combat engineers have expedited work to provide road connectivity to forward posts. He explained that building roads and tunnels is a "force multiplier" that also helps develop communities in remote border locations.

**Bolstering Border Defense:** Beijing claims that the situation at the China-India border has been

peaceful in the past few weeks. However, the Indian military continues to deploy high-powered weapons and equipment amid heightened tensions to bolster its defenses in the event of a conflict. Earlier this year, India ramped up its border defenses by deploying upgraded L-70 anti-aircraft guns, which feature enhanced target acquisition and automatic target tracking capabilities against enemy drones.

The Indian Army also plans to purchase a next-generation lightweight low-level radar to improve its threat detection. The new equipment will help detect and identify enemy aircraft in areas where surveillance is restricted. To boost patrol along the LAC separating India from

China, New Delhi has deployed an additional 50,000 troops, which brings the total number of Indian soldiers at the border to 200,000. ...

Source: <https://www.thedefensepost.com/2021/12/28/india-nuclear-hardened-facilities/>, 28 December 2021.

### NORTH KOREA

#### Kim Jong Un Starts Meeting to Chart Nuclear Strategy Toward U.S.

North Korea's ruling party started a major policy meeting to lay out priorities for the coming year and how to respond to the Biden administration's invitation to return to nuclear disarmament talks stalled for about two years. Leader Kim Jong Un attended the opening session of a Workers' Party Central Committee meeting, the official Korean Central News Agency said. Kim and his top cadres planned to "discuss and decide on the strategic and tactical policies," according to the brief dispatch published on December 28, 2021.

There was no indication on how long the meeting would take, but previous such meetings lasted as long as four days, according to NK News. Given the year-end timing of the meeting, it was expected that Kim would skip the leader's traditional New Year's Day address for the third



straight year and instead lay out his views in a speech to party members. Kim has shown little public interest in returning to U.S. nuclear talks that were revived and then collapsed under former President Donald Trump. In recent months, Kim has rolled out his most latest weaponry designed to deliver nuclear strikes against U.S. allies in Asia.

Meanwhile, North Korea's economy is now smaller than when Kim took power a decade ago due in large part to the sanctions to punish him for testing nuclear weapons and missiles that can deliver warheads to the U.S. mainland. His decision to close the borders due to the coronavirus pandemic slammed the brakes on what little legal trade North Korea had. President Joe Biden's administration has told Kim the door is open for talks and indicated the U.S. could offer incentives to help North Korea's sanctions-hit economy in exchange for steps to wind down the state's nuclear arsenal. Kim said in June at a similar meeting his country was open to "both dialogue and confrontation," offering the highest-level opening for discussions since Biden replaced Trump, who met Kim three times.

Kim subsequently started testing new weapons systems that included long-range cruise missiles capable of delivering nuclear warheads to all of South Korea and most of Japan as well as a new submarine-launched ballistic missile. Washington stepped up the pressure on Pyongyang this month when the U.S. Treasury Department imposed sanctions on people and entities for what it said was their connection to human rights abuses. Among those on the list was North Korean Defense Minister Ri Yong Gil and a North Korean animation studio that has helped in work for overseas productions.

Source: <https://www.bloomberg.com/news/>

*articles/2021-12-28/kim-jong-un-starts-meeting-to-chart-nuclear-strategy-toward-u-s, 28 December 2021.*

## **PAKISTAN**

### **Pakistan Tests Indigenous Cruise Missile with Enhanced Range**

Pakistan has successfully test-fired the advanced version of domestically developed Babur cruise missile 1B. The test was witnessed by the director general of SPD Lt Gen Nadeem Zaki Manj who expressed full confidence that the test "will further strengthen Pakistan's strategic deterrence." He congratulated the scientists and engineers on achieving excellence in the domain of cruise missile technology.

Chairman National Engineering and Scientific Commission (NESCOM) Dr Raza Samar, Commander Army Strategic Force Command Lt Gen Muhammad Ali and senior officers from strategic organizations attended the test firing at an undisclosed location. The military's statement did not give details on the range of the

missile and only mentioned that the range has been "extended." However, experts believe that the missile's range has been extended to more than 900 kilometres. The missile of the same model could strike targets both at land and sea with "high accuracy" at a range of 700 kilometres.

The Babur (Hatf 7) is a ground-launched cruise missile with an estimated range of over 700km. It can deliver both nuclear and conventional payloads. The low-flying stealthy cruise missiles are generally difficult to detect with radar. Pakistan first tested the Babur system in August 2005 and has launched its several variants over the years. It has been tested from both land-based and underwater platforms. In 2017, the country tested

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its first submarine-launched cruise missile of Babur variant, the Babur-III, which has a range of 450 km. ...

Source: <https://gulfnews.com/world/asia/pakistan/pakistan-tests-indigenous-cruise-missile-with-enhanced-range-1.84577835>, 23 December 2021.

## BALLISTIC MISSILE DEFENSE

### INDIA

#### India Deploys First S-400 Air Defence System in Punjab Sector

Boosting its capability to tackle aerial threats from both China and Pakistan, India has started deploying its S-400 air defence missile system in the Punjab sector.... Russia has started supplying the S-400 Triumf air defence systems to India, the first unit of which will be deployed near the western front.

The announcement was made by the Director of Russian Federal Service for Military-Technical Cooperation (FSMTC) Dmitry Shugaev at the Dubai air show. FSMTC is the Russian government's main defence export control organisation. Industry sources said the first parts of the squadron have already started reaching India, and they would be deployed to a location where it can take on threats from both Pakistan and Chinese airspace. According to sources, the parts of the missile systems are coming via both air and sea routes and would be quickly deployed in the designated locations. "The first squadron delivery would be completed by the end of this year and after its deployment, the Indian Air Force would start focusing towards the eastern front," they said. The IAF would also dedicate some of the

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**The first S-550 brigade has entered combat duty," he said. The source described the new system as "an absolutely new and unrivalled mobile system of strategic missile defense," capable of "hitting spacecraft, ballistic missile reentry vehicles and hypersonic targets at altitudes of tens of thousands of kilometers.**

resources to training its personnel within the country.

Source: <https://www.indiatoday.in/india/story/india-russia-s-400-air-defence-missile-system-punjab-sector-1890141-2021-12-21>, 21 December 2021.

### RUSSIA

Russia's new S-550 air defense system has successfully passed state trials and entered combat service; a source close to the Russian defense ministry has told TASS. "The S-550 air defense system has successfully completed state trials. The first S-550 brigade has entered combat duty," he said. The source described the new system as "an absolutely new and unrivalled mobile system of strategic missile defense," capable of "hitting spacecraft, ballistic missile reentry vehicles and hypersonic targets at altitudes of tens of thousands of kilometers."

According to the source, the new system becomes a part of Russia's comprehensive missile and air defense, comprised by Pantsir systems (low-altitude), long-range S-350, S-400 and S-500 systems and S-550 (in space). Official sources have not yet confirmed this information to TASS. Russian Defense Minister Sergei Shoigu said at the ministry's conference call on November 9 that at defense industry meetings in Sochi in November Russian President Vladimir Putin had put emphasis on the importance of delivering S-350, S-500 and S-550 air and missile defense systems to the Russian troops.

Head of the Rostec state tech corporation Rostec Sergei Chemezov said at the Dubai Airshow 2021 that the S-550 would feature a longer-range target detection and missile interception capability. A

source close to the Russian Defense Ministry told TASS earlier that the S-550 system was not an attempt to revive an eponymous Soviet-era project, although some unimplemented concepts of it were used while creating the modern version.

Source: <https://tass.com/defense/1382133>, 29 December 2021.

## **SAUDI ARABIA-CHINA**

### **Saudis Begin Making Ballistic Missiles with Chinese Help**

Saudi Arabia has imported sensitive missile technology from the Chinese military and is manufacturing its own ballistic missiles, according to Saudi advisers and officials familiar with U.S. intelligence, raising new worries of a Middle East arms race. The Saudi effort is the latest in a series of moves by U.S. allies in the Middle East to increase military cooperation with China in a trend that has angered the Biden administration during a period of heightened animosity between Washington and Beijing.

The Saudi government has sought help from the missile branch of the Chinese military, the People's Liberation Army Rocket Force, said the Saudi advisers and an official familiar with U.S. intelligence. These conversations have moved into the stage of actually acquiring hardware from the Chinese military, the advisers and the official said.

... The U.S. has long refused to sell ballistic missiles to Riyadh over proliferation concerns. The kingdom obtained Dong Feng-3 missiles in the 1980s from China and displayed them publicly in 2014. The Chinese military has also transferred multiple batches of finished Dong Feng-series missiles since around 2018 up to as recently as the spring

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of this year, said the advisers and the official. U.S. intelligence agencies have raised concerns about the transfers but the Biden administration has been reluctant to impose consequences on Saudi Arabia, a strategic partner in the region.

One of the officials familiar with U.S. intelligence said the U.S. is preparing to impose sanctions on Chinese actors over the missile transfers, but not on Saudi officials or institutions. ... Riyadh's development of its own ballistic missile program could also complicate negotiations for a return to the 2015 international nuclear deal with Iran, analysts say. Iran has demanded that other ballistic missile programs in the region, specifically Israel's, also be subject to discussion in the negotiations. ...

Source: <https://www.livemint.com/politics/news/saudis-begin-making-ballistic-missiles-with-chinese-help-11640326735095.html>, 24 December 2021.

## **NUCLEAR ENERGY**

### **CHINA**

### **China's First Nuclear Plant Celebrates 30 Safe Years**

The Qinshan Nuclear Power Station, China's first self-developed nuclear power plant, saw its 30th anniversary of safe power generation, said the China National Nuclear Corporation (CNNC). Located in east China's Zhejiang Province, the plant became operational on Dec. 15, 1991, ending the history of no nuclear power on the Chinese mainland.

Possessing nine operating units, the plant currently has a total installed capacity of 6.6 million kilowatts with an annual power generation of about 52 billion kilowatt-hours (kWh) said the CNNC. As of December 15, 2021 the plant has

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generated more than 690 billion kWh of electricity, equivalent to reducing carbon dioxide emissions by 653 million tonnes, it said. China now has a complete nuclear industry and industrial chain, capable of large-scale nuclear power development, said CNNC President Yu Jianfeng.

Source: <http://www.ecns.cn/news/sci-tech/2021-12-16/detail-ihattiyu7540963.shtml>, 16 December 2021.

## GERMANY

### Germany's Nuclear Phase-Out to Continue Permanent Closure by Year End

Germany's nuclear phase-out will continue with the permanent closure of the country's last three nuclear reactors at the end of the year, the government has said. The operating licenses for the three nuclear power plants expire at the end of 2021 and will not be renewed. The plants will therefore go off-grid by the end of 2022 at the latest, Xinhua news agency reported. "The nuclear phase-out in Germany will then be complete," the German government said. In the wake of the Fukushima disaster in 2011, former German Chancellor Angela Merkel launched safety inspections of all nuclear power plants. This led to an acceleration of Germany's phase-out of nuclear energy.

According to the Federal Statistical Office (Destatis), almost 57 per cent of electricity generated in Germany and fed into the grid in the third quarter (Q3) of 2021 still came from conventional energy sources such as coal, natural gas or nuclear energy. The share of nuclear energy in Germany increased from 12.9

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"dismantling should begin as soon as possible," since a nuclear facility could continue to "pose a risk to people and the environment even after it has ceased operation." However, discussions on the final repository for high-level radioactive waste are not yet finished. The government plans to complete this process by 2031, and from 2050 onwards, the nuclear waste would be stored at the final site.

Source: [https://www.business-standard.com/article/international/germany-s-nuclear-phase-out-to-continue-permanent-closure-by-year-end-121122200163\\_1.html](https://www.business-standard.com/article/international/germany-s-nuclear-phase-out-to-continue-permanent-closure-by-year-end-121122200163_1.html), 22 December, 2021.

## NUCLEAR COOPERATION

### INDIA–RUSSIA

#### Expanding Indo-Russian Strategic Partnership: Kudankulam Nuclear Power Plant Launches Construction of Unit 6

**The construction of the Russia-supported Kudankulam NPP Unit 6 was launched on 18 December through the first concrete in the foundation slab of the reactor building. "The first two NPP power units are demonstrating sustainable operation at the nominal power level. The power units of the second stage are being constructed, namely the works are underway at Unit 3 to prepare for installation of the reactor pressure vessel," according to Russian nuclear major Rosatom which is constructing the NPP.**

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"In June of this year, the first concrete was laid at the power unit No. 5, and on December 20, the first concreting was launched at the power unit No. 6. The third stage of the Kudankulam NPP relating to the main construction period will provide additional power capacity to ensure the industrial and commercial development of businesses in the Tamil Nadu region and the India as a whole; moreover, it will promote more confidence in our friendly countries' prospects to expand peaceful nuclear cooperation by using the most advanced projects of high-capacity nuclear power units of the Russian design ", Andrey Lebedev, ASE JSC Vice-President for Projects in India and Prospective Projects pointed out.

The equipment required for the installation at Units 5& 6 at Kudankulam is being supplied now and the construction process is ongoing. ...After signing the General Framework Agreement (GFA) on April 10, 2014, on construction of Units 3, 4, the negotiations with the Indian party began regarding construction of Kudankulam NPP Units 5, 6, upon the results of which the agreement was reached that these Units would be constructed in compliance with the same design as it was stipulated for Units 3, 4. On June 01, 2017, the Credit Protocol to the Intergovernmental Agreement of December 05, 2008 and the GFA for Kudankulam NPP Units 5, 6 were signed.

Source: [https://economictimes.indiatimes.com/industry/energy/power/expanding-indo-russian-strategic-partnership-kudankulam-nuclear-power-plant-launches-construction-of-unit6/articleshow/88418348.cms?utm\\_source=content\\_of\\_interest&utm\\_medium=text&utm\\_campaign=cppst](https://economictimes.indiatimes.com/industry/energy/power/expanding-indo-russian-strategic-partnership-kudankulam-nuclear-power-plant-launches-construction-of-unit6/articleshow/88418348.cms?utm_source=content_of_interest&utm_medium=text&utm_campaign=cppst), 21 December 2021.

## **NUCLEAR PROLIFERATION**

### **PAKISTAN-CHINA**

On November 18, based on specific intelligence, officials of the Directorate of Revenue Intelligence (DRI) seized a consignment aboard a ship flying

under the Singapore flag that had landed at Mundra port in Gujarat's Kutch district. It was material that Pakistan was sending from its Karachi Nuclear Power Plant, K-2, to a Chinese nuclear facility in Shanghai. India's two nuclear-armed rivals were exchanging nuclear material between them, using an Indian port! What was the material? It was likely spent nuclear fuel, perhaps being sent back to China for reprocessing, although Indian officials haven't confirmed that this was indeed the case. The consignment had seven containers, with four barrels in each container.

Pakistan's Foreign Office was quoted days after the seizure that the containers were "empty" and had been used for transporting "nuclear fuel" from

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China. Why Pakistani authorities thought it fit to send it via India is a question that needs to be asked. The case was highlighted after Adani Ports and Special Economic Zone (APSEZ), which operates the Mundra port, issued a statement saying

that Customs and DRI officials had seized several containers from a foreign vessel at the port on concerns that they contained undeclared hazardous cargo.

Following scientific examinations of the consignment of "empty nuclear fuel containers", the DRI is set to issue "show cause" notices to the parties concerned, including the cargo ship that brought the consignment, before it initiates the process to formally confiscate the material for violation of several laws and for "serious breach of national security." The examinations, sources said, have found that the consignment not only fell under the "hazardous" goods category, it also breached several laws, including the Indian Arms Act, Customs Act, Weapon of Mass Destruction and their Delivery Systems (Prohibition of Unlawful Activities) Act and also violated Directorate General of Foreign Trade (DGFT) rules as these specialised containers are regulated under the Export of Special Chemicals,

Organisms, Materials, Equipment and Technologies (SCOMET) list.

"Tests have confirmed that although the containers didn't have radioactive substances, it (the consignment) breached laws that prohibit the import-export of nuclear fuel and related materials without authorisation," a senior officer with knowledge of the investigation told DH on condition of anonymity. "It has been confirmed that these are specialised containers meant to carry nuclear fuel. There are stickers showing them as hazardous class-7 (radioactive substance), but the bill of entry mentioned only 'empty fuel containers'. This is a serious breach of India's security, even if the consignment was not meant for landing at Mundra port," he said.

Two other sources told DH that it was surmised that China had sent the fuel directly to Pakistan some months ago. "We believe that after using the fuel, Pakistan tried to transport the empty containers back through commercial sea route disregarding local laws. Since the consignee violated major Indian rules and undermined our security, these expensive and specialised containers are going to be confiscated. Discussions are also on to register a criminal case as well."

**Not the First Breach:** The November 18 seizure is not the first time that such a security breach has been reported. In the past, at least two major incidents were reported from Kandla and Mundra ports... "Our investigation is still going on. More than the value and misdeclaration of the consignment, it concerns national security. We don't know if the nuclear fuel was used for power generation or for making weapons. We can't rule out nuclear proliferation, either. The case is still under investigation," said a fourth source in the know of the investigation. ...

Source: <https://www.deccanherald.com/opinion/panorama/pak-china-nuke-proliferation-via->

[gujarat-port-that-seems-to-be-the-case-1061301.html](https://www.deccanherald.com/opinion/panorama/pak-china-nuke-proliferation-via-gujarat-port-that-seems-to-be-the-case-1061301.html), 16 December 2021.

## NUCLEAR NON-PROLIFERATION

### GENERAL

#### U.N. Nonproliferation Talks to be Postponed Again Due to Pandemic

A U.N. conference on nuclear nonproliferation scheduled for next month is expected to be postponed again amid the surge of the Omicron variant of the novel coronavirus, diplomatic sources said. The gathering to review the Treaty on the Non-Proliferation of nuclear weapons was scheduled to be held Jan. 4 to 28 in New York after repeated postponements from its original date in 2020 due to the pandemic.

The third and final session of the Preparatory Committee for the 2020 NPT review conference is held in New York, on April 29, 2019. The United States and some European countries have seen a sharp rise in COVID-19 cases with the advent of the Omicron variant, prompting authorities to bring back some restrictions at indoor venues and on public transportation.

New York is among the hardest-hit areas during the latest wave of infections in the United States and the administration of President Joe Biden and local authorities are scrambling

to get more people vaccinated or receiving booster shots. NPT review conferences, which provide a platform for nuclear weapon states to hold discussions with non-nuclear weapon states, have been held every five years since 1975, with the last gathering in 2015. Participating countries failed to adopt a consensus document at that gathering due to a growing rift among members. Japanese Prime Minister Fumio Kishida said he is considering making a video address to the NPT review conference.

Source: <https://english.kyodonews.net/news/>

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*2021/12/08f5c33bfa20-un-nonproliferation-talks-to-be-postponed-again-due-to-pandemic.html, 29 December 2021.*

### **Stockholm Initiative Determined to Achieve the Elimination of Nuclear Weapons**

The 16-nation Stockholm Initiative for Nuclear Disarmament has urged the upcoming Tenth Review Conference of the NPT from January 4-28, 2022, "to demonstrate political leadership, honour commitments and achievements made under the Treaty, and set ourselves on a decisive path towards a world free of nuclear weapons, in the interest of preserving humanity". Launched by Sweden in 2019, the Stockholm Initiative aims to inject fresh practical impetus into nuclear disarmament and build bridges between nuclear-weapon and non nuclear-weapon states.

The Group's fifth ministerial on December 14 in Stockholm further resolved: "We remain united in our resolve to achieve the elimination of nuclear weapons in an irreversible, verifiable, and transparent manner, and to reduce the risks they pose in the interim".

The meeting was co-chaired by the Minister for Foreign Affairs of Sweden Ann Linde and the Minister for Foreign Affairs of Germany Annalena Baerbock. Their counterparts from Argentina, Canada, Ethiopia, Finland, Indonesia, Japan, Jordan, Kazakhstan, the Netherlands, New Zealand, Norway, South Korea, Spain, and Switzerland joined.

Ms Baerbock was appointed as Germany's Foreign Affairs Minister on December 8, 2021. Before her joining the Fifth Ministerial Conference first time, the Foreign Office in Berlin said: "Germany seeks to take on a leading role in bolstering international disarmament initiatives." This is indeed what the

country did with Heiko Maas as Ms Baerbock's predecessor.

...The Stockholm group gathered this time some three weeks ahead of the Tenth NPT Review Conference scheduled—two years after the Treaty's 50th anniversary. The fifth ministerial meeting said: "The upcoming NPT Review Conference is a pivotal opportunity for all states to show high-level commitment to nuclear disarmament. The Stockholm Initiative for

Nuclear Disarmament has presented a feasible way forward in this regard. We offer our full support to the President-designate of the Review Conference, Ambassador Gustavo Zlauvinen, in guiding delegations to secure the continued success of the Treaty." ...

Source: <https://www.indepthnews.net/index.php/armaments/nuclear-weapons/4966-stockholm-initiative-determined-to-achieve-the-elimination-of-nuclear-weapons>, 15 December 2021.

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**United States National Security Adviser Jake Sullivan met Israeli Prime Minister Naftali Bennett, calling for a "common strategy" as world powers continue to negotiate a new nuclear agreement with Iran. Bennett meanwhile warned during the December 22, 2021 meetings that negotiations in Vienna on Iran's nuclear programme had "profound ramifications" for Israeli security.**

### **IRAN**

#### **US Official Meets with Israeli PM on Iran Nuclear Deal Talks**

Jake Sullivan called for a 'common strategy' as world powers continue to negotiate new nuclear deal. United States National Security Adviser Jake Sullivan met Israeli Prime Minister Naftali Bennett, calling for a "common strategy" as world powers continue to negotiate a new nuclear agreement with Iran. Bennett meanwhile warned during the December 22, 2021 meetings that negotiations in Vienna on Iran's nuclear programme had "profound ramifications" for Israeli security.

Bennett's government has remained firmly opposed to continuing international efforts to revive the 2015 accord that saw Iran agree to curbs on its nuclear activities in exchange for

sanctions relief. Former US President Donald Trump withdrew from the agreement in 2018, and instead began a campaign of “maximum pressure” sanctions against Tehran, who in turn flouted commitments under the deal. Sullivan said his visit to Israel had come at “a critical juncture”. “It’s important that we sit together and develop a common strategy, a common outlook, and find a way forward that fundamentally secures your country’s interests and mine,” Sullivan said, according to an Israeli government statement.

He did not directly mention Iran but the Israeli statement said the meeting focused on the Vienna talks, which are expected to soon enter their eighth round. Bennett has called for the negotiations to be halted, accusing Iran of “nuclear blackmail” and charging that revenue it gained from sanctions relief would be used to acquire weapons to harm Israelis.

...The statement added that Sullivan updated the Israeli delegation on the progress of the Vienna talks, stressing that the US and Israel are “aligned in their determination” that Iran should never get a nuclear weapon. Sullivan later told reporters that diplomatic efforts to revive the nuclear deal could be exhausted in “weeks.” “We’re not circling a date on the calendar in public, but I can tell you that behind closed doors we are talking about time frames and they are not long,” he told reporters.

Source: <https://www.aljazeera.com/news/2021/12/22/us-official-meets-with-israeli-pm-on-iran-nuclear-deal-talks>, 22 December 2021.

### A Last-Ditch Effort to Save the Iran Deal

The eighth round of nuclear talks kicks off in Vienna, with U.S. officials saying Iran has only weeks to play ball. U.S. President Joe Biden’s administration opened big-power talks in Vienna to determine whether steady advances to Tehran’s nuclear program render the landmark Iran nuclear deal “a corpse that cannot be revived,”

as one senior U.S. official recently put it to reporters, or if there’s still a chance to salvage the accord.

The United States has cast the eighth and latest round of negotiations as a last chance for achieving a diplomatic settlement of its nuclear dispute with Iran. U.S. officials warn that the window for reviving the 2015 nuclear pact—known as the Joint Comprehensive Plan of Action (JCPOA)—is nearly shut. Iran has weeks, not months, to strike a deal or curtail its nuclear activities to avoid facing the prospect of stepped-up coercive measures, from additional sanctions to the threat of military action, a senior U.S. official told Foreign Policy.

“Either we reach a deal quickly or they slow down their program,” the official said, speaking on condition of anonymity given the negotiations’ confidential nature. “If they do neither, [it’s] hard to see how [the] JCPOA survives past that period.” “We’ve seen modest steps in recent weeks, but the Iranians are not working at a pace required to get a breakthrough in the coming weeks,” the U.S. official added.

Russia and Iran pushed back on the need to establish a fixed deadline for the talks to conclude, with Moscow contending Iran is still far enough away from developing a weapon capable of delivering a nuclear warhead. (Iran claims it has no intention of pursuing nuclear weapons.) “This sense of urgency is a little bit exaggerated,” said Mikhail Ulyanov, Russia’s chief nuclear negotiator and ambassador to Vienna. “Yes, it’s urgent, but let’s be prudent; let’s [not] set up artificial deadlines.”

In recent weeks, the Biden administration has been signaling its intention to tighten the economic screws on Iran if the talks, which resumed on Dec. 27, can’t bring Iran back into full compliance with the pact. Andrea Gacki, head

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of the Treasury Department's Office of Foreign Assets Control, led a delegation to the United Arab Emirates as part of an effort to strengthen the enforcement of existing U.S. sanctions, warning banking and petroleum executives in the UAE to abide by the sanctions or face U.S. penalties.

Biden cited restoring the Iran nuclear pact as one of his top foreign-policy priorities, appointing Robert Malley as special envoy for nuclear talks during his first eight days in office. The 2015 deal was the singular diplomatic achievement of the Obama administration, a painstakingly negotiated pact that imposed a complex series of constraints on Iran's nuclear program in exchange for sanctions relief.

But then-U.S. President Donald Trump withdrew from the deal in 2018, allowing Iran to rebuild and accelerate some of the most sensitive elements of its nuclear program, including the installation of more advanced centrifuges and the production of highly enriched uranium, while restricting international scrutiny of the program.

The day after the seventh round of nuclear talks resumed in Vienna on Nov. 29, Iran began enriching a higher-grade uranium—some 20 percent purity—with a cascade of more advanced IR-6 centrifuges than permitted by the pact. Iran's breakout time—the amount of time it would take to produce enough weapons-grade uranium for a bomb—has shrunk from about 12 months at the time the nuclear pact was concluded to about one month, experts said. It could take Iran another two years to produce a nuclear warhead.

Israel recently pressed Biden's national security advisor, Jake Sullivan, to either negotiate more far-

reaching constraints on Iran's nuclear program or tighten the economic noose. In an interview with the *New York Times*, Israeli Foreign Affairs Minister Yair Lapid said the best outcome would be a stronger deal than the JCPOA, which could ensure Iran never obtains a nuclear weapon, and the worst would be a "bad deal" that provides Tehran enough wiggle room to build a nuclear weapons program at some stage in the future. "Second best would be no deal but tightening the sanctions and making sure Iran cannot go forward," he told the Times.

The Biden administration has focused on simply returning to the original deal, but that effort has been strained by even more than Iran's nuclear advances. The United States carried out several rounds of talks with the Iranian government of former President Hassan Rouhani, who struck the original agreement with the Obama administration. But the start of a new president, Ebrahim Raisi, has scrambled those calculations. Iran replaced its nuclear negotiating team and appointed a hard-liner, Ali Bagheri Kani, to lead talks. He has backtracked on commitments his predecessors made.

Linda Thomas-Greenfield, the U.S. ambassador to the United Nations, recently accused Iran's new negotiating team of staking out "vague, unrealistic, maximalist, and unconstructive positions" on sanctions, reneging on compromises it made during the previous six months of talks.

...European powers have been losing patience with Iran but said they are reluctant to dump the diplomatic track. In mid-December, representatives from Britain, France, and Germany

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**Linda Thomas-Greenfield, the U.S. ambassador to the United Nations, recently accused Iran's new negotiating team of staking out "vague, unrealistic, maximalist, and unconstructive positions" on sanctions, reneging on compromises it made during the previous six months of talks.**

blamed Iran's new negotiating team for the new unreasonable demands. "Time is running out," they said in a joint statement. "Without swift progress, in light of Iran's fast-forwarding of its nuclear program, the JCPOA will very soon become an empty shell."

In recent weeks, European diplomats have received instructions from their capitals to be prepared, in the event of a breakdown in talks, for the possible reimposition of sanctions on Iran. The so-called snapback provision of the 2015 nuclear pact permits signatories to reimpose a wide range of U.N. sanctions if they deem Iran is in breach of the agreement.

Since then, Iran has taken a number of steps to ease diplomatic pressure, including meeting a demand by the IAEA to provide access to video cameras installed in an Iranian reprocessing facility in Karaj, Iran. That agreement, negotiated with Russia's help, headed off an immediate collision with the United States, which threatened to seek formal censure of Iran at the IAEA, a move Tehran said would drive it out of the deal for good.

The process "ebbs and flows for us," one European diplomat said. "There has been slightly better mood music over the last couple of weeks," citing the Karaj agreement, a bit more flexibility over the scope of nuclear talks, and Iran's acting "somewhat less troublesome" in the region by refraining from attacks on vessels in the Strait of Hormuz. "Iran is being as reasonable as one can ever expect the Iranians to be," the diplomat added. "The alternative is worse. We are still pretty open-eyed about what Iran is up to, but the cost of dropping out and making it all about confrontation is not in anyone's interest."

Bagheri Kani, Iran's chief negotiator, opened talks with representatives of the five permanent members of the U.N. Security Council—Britain, China, France, Russia, and the United States—as well as Germany and the European Union, which

is serving as facilitator of the talks. The talks could continue through the end of January or early February 2022. The Iranian delegation is seeking a sweeping rollback of sanctions and demanding assurances from the Biden administration that any agreement it strikes will be honored by future U.S. administrations—an assurance the president may not have the power to grant. ...

Source: <https://foreignpolicy.com/2021/12/28/iran-nuclear-deal-jcpoa-vienna-capabilities-biden/>, 28 December 2021.

## RUSSIA–USA

### Russian-US Talks on Security Guarantees Scheduled for January 10 in Geneva

The Russian-US consultations on security guarantees are scheduled for January 10 in Geneva, Deputy Foreign Minister Sergey Ryabkov.... "The talks will take place in Geneva," the senior diplomat noted. The bilateral Russian-American consultations, which, we hope, are likely to develop into negotiations on our draft agreements, will be held on January 10," Ryabkov stated. On December 17, the Russian Foreign Ministry released a draft agreement on security guarantees on a part of the US and NATO. They were handed over to US Assistant Secretary of State for European and Eurasian Affairs Karen Donfried on December 15.

Source: <https://tass.com/politics/1381725>, 28 December 2021.

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## URANIUM PRODUCTION

### UKRAINE

Ukraine aims to produce enough uranium for nuclear energy needs. Ukraine, facing a lack of fuel for thermal power plants and surging gas prices, aims to increase its uranium production to cover fully the needs of its nuclear power units after 2026, the government said on December 29, 2021.

Under a national programme the government adopted on Dec 29, Ukraine will invest 9.1 billion hryvnia (\$335 million) over the next five years to increase uranium mining and processing facilities in the centre of the country. It said the production at four Ukrainian uranium deposits would total 995 tonnes in 2022 and should rise to 1,265 tonnes in 2026.

It gave no uranium output figure for 2021 but said current production meets around 40% of Ukraine's needs for nuclear fuel. The rest comes from imports from Russia and the United States. Ukraine lost most of its coal mines after the seizure of the eastern regions by separatists following Russia's annexation of Crimea in 2014. Given the surge in gas prices that makes gas generation uneconomic, it has been importing coal for its thermal plants.

Four Ukrainian nuclear power plants produce just over half of the country's electricity, while the rest is from coal and natural gas generation (36%) and renewables (13%) as of October 2021, government figures showed. The World Nuclear Association said Ukraine produced 800 tonnes of uranium in 2019 and 744 tonnes in 2020.

Source: <https://www.reuters.com/markets/commodities/ukraine-aims-produce-enough-uranium-nuclear-energy-needs-2021-12-29/>, 29 December 2021.

**NUCLEAR SECURITY**

**BOLIVIA-PARAGUAY**

**Bolivia and Paraguay to Enhance Nuclear Security at New Irradiation Facilities**

Bolivia and Paraguay are finalizing the design, selection and integration of the most appropriate physical protection measures against potential malicious acts at their new irradiation facilities, with support from the IAEA. These facilities are used to irradiate items such as medical devices

for sterilization and fruits for the destruction of pest larvae before exports.

The facilities use radioactive sources, which could be misused in the wrong hands, and therefore need to be protected. Putting in place physical protection systems is one of the most important milestones in the process of commissioning such facilities.

Bolivia requested IAEA assistance to enhance the physical protection of a new multi-purpose gamma irradiator prior to the delivery of high-activity radioactive sources next year. "The new gamma irradiation multipurpose complex will contribute

to food safety, increasing agro-industrial productivity, food export and preservation, seed improvement and pest control," explained Hortensia Jiménez Rivera, Director General of the Bolivian Nuclear Energy Agency (ABEN). "Ensuring that the radioactive sources that will be used at the

facility are secure is a priority both for us and the regulatory body."

Paraguay also requested assistance for the protection of the country's first irradiator for research on tissue irradiation, blood irradiation, plant breeding and food safety, which is planned to become operational next year. Mario José Gutiérrez Simón, Minister and Executive Secretary of the Radiological and Nuclear Regulatory Authority in Paraguay, explained that the country's first irradiator will help improve medical treatment services in Paraguay. "While the focus is, of course, on development and making these important services available, this cannot be fully achieved without considering the vital aspects of safety and security. The support provided by the IAEA will help us to do that."

The IAEA sent experts to the facilities under construction and met with key stakeholders to support the establishment of physical protection measures at the sites. The guidance and training

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of personnel have enabled local experts to design optimized security systems.

"These facilities, once operational, will be using category 1 radioactive sources, which are considered to be dangerous if not managed safely and securely," said Elena Buglova, Director of the IAEA Division of Nuclear Security, adding that, "we are very committed to support all States in improved physical protection as part of our long-term capacity building efforts in the secure use of nuclear technology."

Regulators and operators in both countries worked closely with IAEA experts to define suitable physical protection systems, including CCTV surveillance, locks, access controls and intrusion detectors, to protect radioactive material against acts of theft and sabotage. This assistance was provided in tandem with support under the IAEA technical cooperation programme to facilitate the transfer of nuclear technology for peaceful uses.

**IAEA Assistance in Nuclear Security:** Nuclear security focuses on the prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear material, other radioactive material and associated facilities.

The IAEA assists States, upon request, to enhance nuclear security by strengthening the physical protection of facilities with high activity radioactive sources, to reduce related security risks. This technical assistance is financed

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exclusively through the Nuclear Security Fund, in support of activities to strengthen national capacities to use radioactive sources for beneficial purposes for sustained socioeconomic development. Countries can identify any assistance needed to support them through the Integrated Nuclear Security Support Plan mechanism.

Source: <https://www.iaea.org/newscenter/news/bolivia-and-paraguay-to-enhance-nuclear-security-at-new-irradiation-facilities>, 23 December 2021.

## EGYPT

### Egypt, IAEA Discuss Cooperation in Nuclear Security

Egyptian President Abdel Fattah Al-Sisi yesterday met the Director General of the IAEA, Rafael Grossi, in Cairo, where they discussed enhancing cooperation in the field of nuclear security. During the meeting, Al-Sisi said that his country was "eager to strengthen existing cooperation with the IAEA in order to benefit from its experience in implementing the highest international nuclear security standards," according to a statement by the presidency.

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He also hailed the agency's efforts in the "use of nuclear science and technology at a global level, and in supporting endeavours aimed at promoting international peace and security," adding that the IAEA had a "great responsibility to reinforce stability and peace in the region." Egypt, he explained, is "looking forward to benefiting from the agency's experience on nuclear security as the country is close to introducing the Dabaa



Nuclear Power Plant in the west of Egypt.”

In November 2015, Egypt and Russia signed an agreement to establish the Dabaa Nuclear Plant. The project is expected to be completed by 2029.

Implemented by Russia's Rosatom State Nuclear Energy Corporation, the plant consists of four third-generation VVER reactors, with a capacity of 1,200 megawatts each.

On his part, Grossi said that the IAEA was supporting the Dabaa project, adding that it would “enhance the outcome of Egypt’s developmental works, and make it a leading country in that field in the region.” The meeting also discussed Egypt hosting the COP27 in 2022, where the merits of reliance on clean energy in reducing carbon emissions will be showcased. In a meeting between Egyptian Foreign Minister, Shoukry, and Grossi “efforts to establish a nuclear weapons free zone in the Middle East, as well as the role of nuclear energy in addressing climate change” were discussed.

Source: <https://www.middleeastmonitor.com/20211217-egypt-iaea-discuss-cooperation-in-nuclear-security/>, 17 December 2021.

## **GENERAL**

### **25 Years of Strengthening Nuclear Security with Physical Protection Peer Advice**

Radioactive sources and nuclear material need to be protected against malicious acts, and for 25 years, the IAEA has been providing peer advice to countries, upon request, around the world on how to build, upgrade and maintain physical protection of facilities. This year, the IAEA’s

International Physical Protection Advisory Service (IPPAS) marks 96 reviews, including 22 follow-up reviews, in 57 countries. IPPAS, is a peer review service, in which international experts and IAEA specialists review nuclear security in a country or

at a facility. Over the last 25, years more than 240 experts from 40 countries have contributed to IPPAS missions.

Under IPPAS missions, an international team of experts reviews a country’s nuclear security regime and compares it with international guidelines and

best practices, in particular the 2005 Amendment to the A/CPPNM and the IAEA Nuclear Security Series (NSS). IPPAS expert teams review the whole

spectrum of security systems and measures a country has in place, from the regulatory framework to transport and information and computer security arrangements.

Based on its review, an IPPAS team identifies good practices and provides recommendations for improvement. Another essential feature of IPPAS is the follow-up assistance, such as training, technical

support and more targeted assessments of various elements of a country’s national nuclear security regime.

“For a quarter of a century now, these advisory missions have brought tangible results to strengthen nuclear security, by offering advice on implementing international instruments and guidance for the physical protection of nuclear and radioactive material and facilities,” said Lydie Evrard, IAEA Deputy Director General and Head of the Department for Nuclear Safety and Security. “This assistance has helped many countries to

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enhance and maintain physical protection in all types of facilities and uses of nuclear material, keeping them secure – as well as safe.” In 2021 alone, the IAEA conducted six IPPAS review missions in Belarus, Burkina Faso, the Czech Republic, Niger, Senegal and Turkey.

This month the IAEA held the 3rd International Seminar to Share Experiences and Best Practices from Conducting IPPAS Missions, in which experts from all over the world discussed the benefits of the service and gained feedback from countries who have requested this advisory service. “In Hungary, the three IPPAS missions we’ve conducted have helped build confidence between the international community and our institutions. They’ve also increased the recognition of and respect for security within our organisation,” said Zsofia Galyas-Szepes, Section Head of Nuclear Security at the Hungarian Atomic Energy Agency.

IPPAS reviews involve both countries with and without nuclear power programmes. For instance, Burkina Faso has strengthened the protection of its radioactive sources and associated facilities as a result of a recent IPPAS review.

Reflecting on how the IPPAS review missions can be further promoted and improved, the experts discussed how a better geographical distribution of these missions could be achieved, given that they are conducted upon a country’s request. The database on IPPAS good practices was updated in 2021. New tools and features developed by the IAEA, such as a self-assessment methodology to help national experts assess their capabilities, as well as the nuclear material accounting and control measures module, have been introduced on a pilot basis, and are now being operationally

tested in missions before becoming part of the IPPAS tools and scope. ...

Source: <https://www.iaea.org/newscenter/news/25-years-of-strengthening-nuclear-security-with-physical-protection-peer-advice>, 23 December 2021.

## NUCLEAR SAFETY

### CHINA

#### China Claims its First Floating Nuclear Reactor can Withstand Extreme Typhoons

A safe reactor is a seaworthy reactor. Or at least, it should be. China claims its floating nuclear reactors, which will power off-shore oil rigs, can withstand “once-in-10,000-year” storms, according to an initial report.... That means hurricane-force winds, and more. To test its resilience, marine engineers subjected a model of the newly designed 60-megawatt reactors to strong winds and dangerously powerful undercurrents. While strong storms are uncommon in the Bohai Sea, where the reactors will be used, the consequences of an accident would be so great that failure simply isn’t an option. “The ship body must not capsize under any circumstance,” said the researchers, according to the report.

#### China’s Floating Nuclear Reactors are a High-Stakes Investment:

The test took place over several hours at a facility designed to simulate extreme weather. The results provided

researchers at the Wuhan Second Ship Design and Research Institute with several insights into how the ship and its reactors would handle exceptionally difficult weather. Overall, the researchers reported an impressive performance, suggesting that the ship’s reactors might remain

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operational in hurricane-speed winds. In further tests, the researchers increased the simulated wind speeds to more than 120 mph (193 k/h) and added strong waves and undercurrents. Even under that extremely unlikely scenario, the ship stayed upright, claimed the report.

Floating nuclear reactors are not a new idea. The United States military operated the world's first floating nuclear plant in the 1960s and 70s, according to the U.S. Army Corps of Engineers. In 2018, Russia launched the Akademik Lomonosov, a 70-megawatt floating power plant that detractors dubbed "nuclear Titanic". Last year, Seaborg, a startup based in Copenhagen, announced it had raised more than \$10 million to begin its effort of building thousands of relatively cheap floating reactors. Despite taking significant safety measures, the company's CEO and co-founder said his firm is "not reducing the likelihood of an accident to zero, there will be accidents. We should avoid them as much as we can, but there will be accidents."

### **Floating Reactors Bring Electricity Beyond the Reach of Powerlines:**

These ocean-going power plants make it easier to provide power to places that don't have the necessary infrastructure. For example, Russia sent the Akademik Lomonosov to Pevek, a port town in the Arctic. This type of deployment may become more common as the warming climate melts ice in the far north, opening up shipping lanes and making it possible to extract deposits of oil, gas, and minerals that have remained untapped.

While Russia's reactor was controversial for environmental reasons, China's fleet of floating

power plants could have far more significant geopolitical implications, according to a report from the Belfer Center at Harvard. Analyst Viet Phuong Nguyen says that despite China's claims that its floating reactors will power oil and gas exploration in the South China Sea — in addition to civilian and military communities that live there — the size of the government's planned fleet of reactors indicates the program is also meant to "help solidify China's military foothold in this contested area."

These tests are the latest evidence of China's position as one of the world's significant industrial, economic, and military

powers. The country's rapid advancements in military technology and space efforts strongly suggest that China is within striking distance of the United States' position as the most powerful and technologically advanced country.

*Source: <https://interestingengineering.com/china-claims-its-first-floating-nuclear-reactor-can-withstand-extreme-typhoons>, 15 December 2021.*

### **SOUTH KOREA**

#### **S. Korea to Invest 642.4 bln Won on Nuclear Safety R&D by 2029**

South Korea said that it will inject 642.4 billion won (US\$541.1 million) on R&D in strengthening safety of the country's nuclear reactors by 2029. The budget is part of a five-year plan for 2022-2026 that is focused on reinforcing safety of the country's nuclear industry and to create new strategic business based on accumulated technology.

The plan was finalized at a government meeting presided over by Prime Minister Kim Boo-kyum

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earlier in the day. The government also said it will separately spend 430 billion won on R&D of storing and disposing spent nuclear fuel by 2029 in an effort to decrease the environmental cost burdens of future generations.

Source: <https://en.yna.co.kr/view/AEN20211227006700320?section=national/politics>, 27 December 2021.

## **UKRAINE-EU**

### **Ukraine will Receive EUR 5 Million from the European Union for Improving Nuclear Safety**

The press service of Deputy Prime Minister for European and Euro-Atlantic Integration Olha Stefanishyna announced this in a statement, the Ukrainian News Agency reports. The Deputy Prime Minister for European and Euro-Atlantic integration has signed an agreement on financing the 2020 Annual Action Program on Nuclear Safety Cooperation between the Ukrainian government and the European Commission.

The total cost of the program is EUR 6.5 million, of which the EU will provide EUR 5 million and Ukraine will contribute EUR 1.5 million. The money will be spent on the drafting of recommendations on possible options and technological solutions for the future management of the Podlesny radioactive waste disposal facility and the management of the waste therein.

The funds will also be used to improve the system for radiation monitoring of water resources in the Chernobyl exclusion zone. According to the statement, Stefanishyna also signed a supplementary agreement on amendment of the agreement on financing the 2019 Technical Cooperation Program. The supplementary

agreement provides for the reallocation of funds to support the development of government agencies' capacity to implement the association agreement's provisions on transportation.

In particular, the funds will be used to improve the connectivity and interoperability of different modes of transport and the efficiency of the existing capacities, as well as to reduce the cost of transport services to boost trade. As Ukrainian News Agency

reported earlier, the Ministry of Energy and the Norwegian Ministry of Foreign Affairs have signed a memorandum of cooperation on nuclear safety.

Source: <https://ukranews.com/en/news/824198-ukraine-to-receive-eur-5-million-from-eu-for-improving-nuclear-safety>, 28 December 2021.

## **NUCLEAR WASTE MANAGEMENT**

## **BRITAIN-AUSTRALIA**

### **Nuclear Waste from Britain Heading to Lucas Heights**

Australia is to receive a two-tonne shipment of nuclear waste from Britain that will arrive under tight security and amid high secrecy in the coming months. The shipment of intermediate-level nuclear waste has been prepared for delivery to the Australian Nuclear Science and Technology Organisation facilities at Lucas Heights, in Sydney's south. It will be just the

second tranche of intermediate-level nuclear waste returned to the country, and its arrival shines a spotlight on Australia's lack of a long-term storage plan for nuclear waste classified above low-level material.

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The radioactive uranium and plutonium waste has been vitrified in four glass containers and then encased in an outer container made of specialised steel, known as a TN81 cask. ANSTO says its previous experience in receiving intermediate-level nuclear waste – which occurred in 2015 when a larger shipment was returned from France – will mitigate any risks. In that shipment, all local roads along the route were shut for more than five hours, and the operation involved the NSW Riot Squad and other police units to contain antinuclear protesters. In the coming weeks, the nuclear waste will be moved by rail from the decommissioned nuclear plant at Sellafield in Cumbria to the British coast before being loaded onto a ship operated by Nuclear Transport Solutions.

It is expected to travel through Australian waters, including some maritime parks, before berthing. The cargo is likely to be unloaded at Port Kembla in Wollongong under heavy guard, arriving sometime before the middle of next year. Wherever the ship berths, the container will be loaded onto a truck for transport through residential and industrial areas, as well as along the Princes Highway through the Royal National Park south of Sydney and on to the Lucas Heights facility.

ANSTO says the final route will be a closely guarded secret and will be decided in consultation with NSW authorities. NTS confirmed that the return of the intermediate-level waste in the form of vitrified residue to Australia had first been expected to take place last year. Preparations for the shipment have been carried out since 2014. “The shipment will be carried out in full compliance with all British, Australian and international regulations, and be subject to the issue of all relevant permits and licences,” NTS said.

The Australian Radiation Protection and Nuclear Safety Agency has recently certified “the transport

package”, and it will allow ANSTO to “temporarily” store the nuclear waste in the Interim Waste Store at Lucas Heights before another temporary storage facility for intermediate waste – currently being considered for Napandee, near the town of Kimba in South Australia – is ready to receive it.

This planned alternative storage solution, which is known as the National Radioactive Waste Management Facility, would bring together all the low-level radioactive waste from 100 different sites around the country and allow temporary storage of intermediate-level waste. However, the proposed site in Kimba is being contested, with a judicial review requested earlier this month by traditional landowners the Barngarla Determination Aboriginal Corporation. Longer-term storage plans for the intermediate waste are yet to be considered.

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Despite this uncertainty, Australia is committed to receiving the waste after 114 ANSTO spent fuel rods were sent to Dounreay, Scotland, to be reprocessed of plutonium and uranium in 1996. The processed waste being returned is of

an equivalent radioactive level, but in a more condensed form than was originally exported to Scotland, and it has now been transported to the old Sellafield power station.

This means that instead of 52 500-litre drums of cemented waste, the British shipment will comprise four canisters of glass waste of an equivalent level. It is classified by British authorities as having radioactivity levels greater than four GBq/tonne for alpha emitters and Beta/gamma emitters greater than 12 GBq/tonne – which puts it in the intermediate category.

ANSTO says it has experience in handling and storing such waste, citing the 2015 arrival of 25 tonnes of similar-level nuclear waste from France. The new shipment will be stored next to that waste. ANSTO said in its submission under the Environment Protection and Biodiversity Conservation Act: “ANSTO’s position is that the

design of the package, which meets international regulations for carriage of radioactive material, and the protective security measures which increase the safety of the transport are such that impact of ionising -radiation on the environment is negligible, even in the event of an accident."

ANSTO group executive, -nuclear precinct, Pamela Naidoo-Ameglio said in a statement -published on the organisation's website that it would be a routine and safe operation. "This will be the second repatriation project and the 12th successful transport of spent fuel or reprocessed waste which ANSTO has carried out since 1963," she said.

It is unclear if local councils positioned along the expected transport route will be notified when the shipment lands. Previously, some export transportation of spent nuclear fuel rods from ANSTO to France for reprocessing has been carried out in the middle of the night with tight secrecy and no prior notice. Several councils, including Wollongong through which the nuclear waste will be carried, have called for Australia to sign and ratify the Treaty on the Prohibition of Nuclear Weapons. Australia can expect to have to receive further shipments of returned waste every six or seven years, including spent fuel elements from the Opal reactor sent to La Hague in France for reprocessing before being returned.

Source: <https://www.theaustralian.com.au/world/nuclear-waste-from-britain-heading-to-lucas-heights/news-story/e5e8511403cd24de66c79be3d1d96fe6>, 29 December 2021.

## JAPAN

### Japan Maps Out Plan to Release Fukushima Water

Japan's government mapped out a plan to release contaminated water from the crippled Fukushima Dai-ichi nuclear power plant into the sea, including compensation standards for local industry and the compilation of a safety assessment report. Japan in April said that it would discharge more than 1 million tonnes of contaminated water in stages after treatment and dilution, starting in about the spring of 2023.

The April announcement provoked concerns from local fishers, and objections from China and South Korea. Earlier this month, the plant's operator, TEPCO outlined detailed plans for the disposal, including building an underwater tunnel to release the water. Under the government scheme, Japan

aims to set standards for compensation for damage caused by what it described as harmful rumours on local industries such as fishing, tourism and agriculture, while reinforcing monitoring capability and transparency to avoid reputational damage.

Japan also expects the IAEA to compile an interim safety assessment next year, based on its review over the safety of the treated water, competence of local analytical laboratories and regulatory frameworks, it said. In an effort to improve transparency to gain the trust of the international community, Japan in April asked the IAEA to conduct a review to assess and advise on the handling of the water.

A decade after a massive earthquake and tsunami ravaged the country's northeastern coast,

**Several councils, including Wollongong through which the nuclear waste will be carried, have called for Australia to sign and ratify the Treaty on the Prohibition of Nuclear Weapons. Australia can expect to have to receive further shipments of returned waste every six or seven years, including spent fuel elements from the Opal reactor sent to La Hague in France for reprocessing before being returned.**

**A decade after a massive earthquake and tsunami ravaged the country's northeastern coast, disabling the plant and causing the world's worst nuclear disaster since Chernobyl, nearly 1.3 million tonnes of contaminated water has accumulated at the site. The water is stored in tanks at an annual cost of about ¥100 billion (US\$870 million) and space is running out.**

disabling the plant and causing the world's worst nuclear disaster since Chernobyl, nearly 1.3 million tonnes of contaminated water has accumulated at the site. The water is stored in tanks at an annual cost of about ₹100 billion (US\$870 million) and space is running out. Japan has said that the release is necessary to press

ahead with the complex decommissioning of the plant. It says that similarly filtered water is routinely released from nuclear plants around the world.

*Source: <https://www.taipeitimes.com/News/front/archives/2021/12/29/2003770368>, 29 December 2021.*



Centre for Air Power Studies

The Centre for Air Power Studies (CAPS) is an independent, non-profit think tank that undertakes and promotes policy-related research, study and discussion on defence and military issues, trends and developments in air power and space for civil and military purposes, as also related issues of national security. The Centre is headed by Air Marshal Anil Chopra, PVSM AVSM VM VSM (Retd).

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