



# NUCLEAR SECURITY



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## OPINION- Sam Reynolds

### Why the Civil Nuclear Trap is Part and Parcel of the Belt and Road Strategy

Since President Xi Jinping announced China's Belt and Road Initiative (BRI) in 2013, there has been no shortage of speculation on the motivations behind it. While Beijing has extolled the \$1 trillion initiative's benefits including trade creation, economic development, and renewable energy it has also repeatedly tried to soft-pedal the BRI's military strategic implications.

Nuclear power plant (NPP) projects, for example, are not listed on several Chinese government BRI websites. Yet, over the next decade China plans to build 30 reactors in BRI countries, many of which are either not party to global nuclear nonproliferation regimes or lack the regulatory basis for controlling nuclear fuel uses. These projects are certainly part of China's grander energy strategy and paint a clearer, drearier picture of how the initiative might unravel.

Developing countries should not be enticed by NPPs, with or without Chinese funding. China is backing them to achieve its own economic and geostrategic goals rather than a public good. Civil nuclear energy presents grave pitfalls in terms of cost, innovation and security that BRI countries

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cannot and should not afford.

The vision statement for the BRI, issued by the Chinese government, states clearly that it will advance nuclear power cooperation, and the Belt and Road Energy Cooperation website lists a handful of bilateral nuclear agreements. Many independent sources like the Carnegie Endowment for International Peace, PricewaterhouseCoopers, and the Stockholm International Peace Research Institute include reactors under the official BRI umbrella. The Chinese National Nuclear Corporation stated that it has already sold eight to seven countries, and

is in talks with more than 40 others. Many of them are BRI participants, including Sudan, Kenya, Egypt, Thailand, Malaysia, Turkey, Saudi Arabia, Iran, and the United Kingdom. However, official BRI websites like the Belt and Road Portal, the Belt and Road Forum and the China-Pakistan Economic Corridor (CPEC) database leave out NPP projects.

There are a number of reasons why Chinese websites might not list them. Nuclear technologies are dual-use, meaning that weapons-grade uranium enrichment requires essentially the same technology as enrichment for civil energy purposes (albeit with many more centrifuges). By leaving nuclear projects officially out of the BRI, China downplays the threat of nuclear weapons proliferation along BRI corridors, binding countries to Beijing via technological cooperation and long-term debt.

Another reason is that China wants to whitewash its violations of nuclear nonproliferation regimes. China is a member of the NSG, prohibiting it from exporting nuclear material to countries like Pakistan, which has not signed the NPT, acceded to full IAEA safeguards, or decelerated its nuclear weapons program. Yet, Chinese officials have stated their involvement in six nuclear reactor projects there.

A third reason is that China is building NPPs in scant regulatory environments, regardless of the glaring security risks. Sudan, which plays a huge role in the BRI, recently signed a framework agreement with China to construct its first nuclear reactor. However, a 2017 study by the Institute for Science and International Security ranked 200 countries based on their ability to limit nuclear trafficking. Sudan ranked 194th. Moreover, it has not signed the IAEA Additional Protocol, which significantly improves the organization's

ability to verify that nuclear fuel is used only for civil energy purposes. Four countries on Sudan's porous borders have not signed it either.

These highly irresponsible "geostrategic nuclear exports" are China's attempt to compete with Russia. Both countries have signed nuclear deals with Iran, Egypt, Sudan and Turkey, and both have looked to dominate nuclear export markets by pushing reactors in places where they do not belong. For Beijing, these projects buy lasting influence in regions supplying raw materials and draw historically pro-Western countries further

into the Chinese camp.

#### *The Larger Point*

Although China will continue to promote the benevolent aspects of the BRI, countries along its corridors and elsewhere should not fall victim to the civil nuclear trap. Nuclear energy is too costly, too time-consuming and too risky, especially in light of better alternatives. Instead, developing countries should lead the way towards a secure, low-carbon, low-cost energy future without NPPs.

...Despite the enthusiasm, two other recent breakthroughs in reactor design — the European Pressurized Reactor (EPR) and America's Westinghouse AP1000 — were also expected to revitalize the industry. In

December 2017, just as the world's first EPR was coming online in China's Guangdong province, a boiler cracked during a test phase causing its third delay in two years and costing \$770 million. An AP1000 reactor under construction in Zhejiang province was delayed a month later.

These kinds of delays are the case more often than not. Of 55 plants under construction worldwide in 2017, nearly two-thirds were behind schedule.

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Time and again, innovations promising cheaper, safer reactors have stalled, indicating flaws in the industry at large.

*Source: Excerpted from The Diplomat, 05 July 2018.*

**OPINION-Madison Freeman**

**How Russia, China Use Nuclear Reactors to Win Global Influence**

It starts when state-sponsored nuclear-power companies underbid Western competitors. Russia and China are using nuclear power projects to build spheres of energy dependence, and the United States is unprepared to respond.

In April 2018, Turkey broke ground on its first nuclear power plant, which the government says will help meet the country's rapidly growing demand for electricity and increase its energy independence. In reality, the project may make Ankara much more vulnerable to Kremlin influence, as the plant will be built, owned, and operated by Russia.

The Akkuyu reactor shows how Russia—and now China—are using energy exports to build influence abroad. Russia bids for such projects through its state-owned nuclear company, Rosatom, under a model that finances construction of nuclear plants, furnishes the trained personnel to run them, and leases them back to the client country.

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Although Rosatom's business model decreases customer costs, it hands Russia influence that extends well beyond the energy sector. In Turkey, Russia is working with the government to draft the nuclear regulations that will apply to its own projects, running the risk of regulatory capture. In Hungary, the relationship between Victor Orban's government and the Kremlin has warmed since Moscow stepped in to finance a nuclear plant expansion that will supply 40 percent of the country's electricity. Russian control of major sources of electricity, as well as the presence of Russian technical and security personnel on the nuclear project site, gives Moscow leverage over a country's security and foreign policy decisions.

Now China is taking a page from Russia's handbook. The Chinese government sees nuclear power as a potentially powerful component of its Belt and Road Initiative (BRI), which aims to economically and politically integrate China with Europe, Africa, and the rest of Asia through major infrastructure projects such as developing nuclear power in energy-dependent countries. Chinese firms are constructing nuclear

plants in Romania, Pakistan, and the United Kingdom, with others to be built in Argentina and Iran—and the list of projects could expand substantially. The chairman of the China National Nuclear Cooperation, a Chinese nuclear vendor, has identified 41 countries along the Belt and Road as potential sites for nuclear power projects. China also aims to establish long-term contracts for the construction and operation of nuclear plants, and captures new markets by covering upfront costs and providing technology and construction services. Beijing is covering 82 percent of the reactor costs in Pakistan, and 33 percent of the United Kingdom's Hinkley Point project.

These projects come with more than a monetary price tag. China in particular has a history of using predatory lending practices to make strategic gains. Last year in 2017, when Sri Lanka could not pay the debts it owed to Chinese companies for infrastructure projects, it was forced to sign over control of the major port of Hambantota to Beijing. China may expand this tactic to make political or territorial gains in key parts of the world by leveraging nuclear power plant debts.

Meanwhile, US nuclear companies find it nearly impossible to compete against government-backed competitors motivated by political goals more than profit. The state-owned nuclear companies of China and Russia are directly lobbied for by top leaders, Vladimir Putin has aggressively promoted Rosatom's bids abroad, including those in the Middle East and South America. Russia has also used other forms of soft power to promote its nuclear presence abroad, including funding youth competitions in Africa and building a research center in Bolivia. Without this form of state support, US companies find

themselves at a disadvantage as they try to sell their product to foreign governments.

In addition, US nuclear exports are severely limited by restrictive export laws and an inefficient and complicated export control process. While maintaining nonproliferation standards is critical to safeguarding global peace, the stringent conditions of these agreements and export controls make US technology far less appealing to other countries than technology from Russia or China, which comes with fewer strings attached. Creating hurdles for US exports will not prevent the adoption of nuclear technology by interested countries, but it will remove the United States from a role in which it can help guide the development of nuclear power and monitor for proliferation concerns.

Despite the barriers it faces, the US nuclear industry is still regarded as the leader in nuclear power technology, and can compete if given a fair playing field. The Trump administration has pledged to revitalize the US nuclear energy industry— to do so, it should guide its companies by streamlining and clarifying the export process and by serving as a global advocate on behalf of its industry.

China and Russia's steps to dominate global nuclear power create a major security vulnerability for the United States and pose a threat to the international order. Nuclear energy can be a powerful element of US foreign policy, but if the United States continues to opt out of this arena, Washington will be handing a powerful foreign policy tool to others to wield.

*Source: <https://www.defenseone.com/>, 12 July 2018.*

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**OPINION- Rajeswari Pillai Rajagopalan**

### **Why India's Nuclear Security Challenge Demands Attention**

Nuclear security has been a key issue for India for several decades, well before the world started paying greater attention to the subject after the 11 September terrorist attacks in the United States. Given the kind of neighbourhood that India is in, securing nuclear and radiological materials from a range of internal and external challenges has remained a major preoccupation.

Such concerns shaped the Indian approach, which took the form of a number of institutional and legal measures, some of which go back to the 1960s. These measures have been periodically revised to adapt to the changing threat environment. Though the likelihood of an attack on a nuclear facility may be remote, the impact of such an attack could potentially be horrendous. This has led to greater official Indian attention leading to better interface between policy, regulation, and technology to implement a more effective security practice.

Even so, India is lagging in one area: the regulation of India's nuclear sector. For example, India's nuclear regulator, the Atomic Energy Regulatory Board (AERB), is not entirely independent of the Department of Atomic Energy, calling into question the independence of the AERB.

One critical step to address this has been the Nuclear Safety Regulatory Authority (NSRA) Bill that was initially tabled in the Indian Parliament in September 2011. The bill would have created a more independent nuclear regulator. However, with the country going into general elections, that

bill lapsed and is yet to be reintroduced in the Parliament. The BJP government has not shown much inclination in attending to the NSRA Bill, though it is critical of it for several reasons.

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That is unfortunate. The passing of the bill and its consequences at home and abroad would be a major boost for India's nuclear security. At home, setting up the NSRA would demonstrate the independence of its nuclear regulator, and that would certainly only improve the formulation of India's nuclear security policies and practices. These additional steps are not difficult to establish either. India has already been practicing many additional measures, be it physical protection, nuclear transportation, or insider threats. However, India has yet to streamline these in a proper framework that is in line with international standards.

Abroad, India's policies and the steps that it takes, especially on nuclear safety and security issues, are critical in strengthening India's case for integration into the global non-proliferation architecture. As India once again makes its case for membership to the NSG in the December 2018 plenary, there is an opportunity for New Delhi to showcase its efforts in this regard.

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India's officialdom needs to understand that no country has a fool-proof security regime but as in nuclear safety, nuclear security regime will continually evolve and improve. In that context, taking up and passing the NSRA Bill indeed will have positive impact both internally and externally. Internally, it will only improve the security, safety and regulatory practices. Externally, it is critical to strengthen India's nuclear security credentials among the larger global nuclear community.

Indian Prime Minister Narendra Modi has taken some initiatives, such as announcing that that India will be hosting a WMD Terrorism Summit in 2018. Not much has been heard about the summit since the announcement but it is believed that India might be holding the Summit sometime early next year. With election around the corner, its prospects, along with that of the NSRA, remain in doubt...This is why it is essential that before its term ends, the Modi government must go ahead and table the NSRA Bill. In addition to replacing the AERB, the bill seeks to establish a Council of Nuclear Safety (CNS) under the leadership of the Prime Minister. This is a significant improvement over the existing AERB structure. Of course, there are issues with how things will move forward. There are still many who question the independence and autonomy of the regulator even with a new NSRA. In response, the Modi Government undertook a series of inter-ministerial meetings to write a new draft of the NSRA bill back in 2015, but it is yet to see daylight.

But the fact remains that in whatever form an NSRA Bill is introduced, it will still be a big step forward in having a legally autonomous nuclear regulator, similar to ones that exist in countries like France, the United Kingdom and the United States. The key question now is whether this government will prioritise nuclear security and take up the bill before the next general election.

Source: <https://www.orfonline.org/>, 07 July 2018. This commentary originally appeared on *The Diplomat*.

**OPINION- Kan Kimura**

### **What Next for the North Korea Negotiations?**

The first US-North Korea Summit since the establishment of North Korea in 1948 had two

focal points. The first was issues concerning North Korea's abolition of nuclear weapons. The other was the end of the Korean War, which began in 1950, and how to construct a system for subsequently stabilizing the Korean Peninsula. These two points appear at first blush to be

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fundamentally different, but they are in fact two sides of the same coin to North Korea, which is becoming increasingly isolated from the international community. This is because the possession of nuclear weapons is a measure with which North Korea can counter the US-South Korea alliance after the Korean War, especially the United States, and maintain its regime.

The focus of the summit was on how far the two sides would go in proposing specific concessions. That is, the focus for the North Korean side was specific roadmaps for abolishing nuclear weapons, and the focus for the US was specific measures related to providing Pyongyang with security guarantees. North Korea is on the horns of a dilemma, namely that if it gives up its weapons of mass destruction without effective measures for securing security guarantees and the United States suddenly reverses

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course and steps up its pressure, North Korea will be facing that pressure without its countermeasures. This explains why Pyongyang reacted so sensitively to National Security Adviser John Bolton's proposal about the Libya model in the process of negotiations.

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The international community has considerable experience with CVID. But what of CVISA? How can it be provided specifically? If a country has actually given up its nuclear weapons and its nuclear weapons program, it is not easy to restart them. Accordingly, a country that has promised to stop possessing weapons of mass destruction can tend to become skeptical during the process of negotiations and eventually drop out.

Negotiations with North Korea to relinquish its nuclear weapons failed, and not just because North Korea is an autocratic, slippery regime.

The specific measures of CVISA that the international community, including the United States, can provide to North Korea, which is skeptical that the international community will immediately crush it, are limited. In fact, the Libya model demonstrated that restoring relations and lifting economic sanctions are no guarantee of a regime's survival. It is also unclear how the conclusion of nonaggression pacts between the United States and North Korea would be implemented, as military pressure and economic sanctions can be restored even if they are once stopped.

Realistically, there are just two ways to make a country like North Korea give up its weapons of mass destruction. The first is to do so by force, if negotiations fail. This is the direction that the United States and its allies took in the past. They expanded the scope of sanctions and pressure on North Korea, making effective use of the United Nations. They finally succeeded in getting not only the UN involved, but also China and Russia, traditionally close allies of Pyongyang. If North Korea shifted to a policy to appeasement

this year because of its economic predicament, then it might be argued that these efforts produced results.

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There is, however, another perspective: Namely, that North Korea decided to negotiate with the United States not because of sanctions, but because it had finished developing its nuclear weapons and had demonstrated their capability. Even if sanctions have been effective, the

post-summit situation is very different. Trump proudly proclaimed the meeting a success and announced that the US would cancel its military exercises with South Korea. Meanwhile, China and South Korea have already suggested that they may ease sanctions. The economic pressure on North Korea is likely to ease.

As such, sanctions alone are unlikely to prompt North Korea to implement CVID. That leaves the US and the rest of the international community with just one realistic course of action. It must convince a highly skeptical North Korea to have faith. For this to happen, the international community must negotiate diligently with North Korea, through a series of small agreements.

Will the United States work to build trust with North

Korea? This is the path it must follow, with the cooperation of the international community. Can Trump, who scrapped the Iran nuclear agreement even as he was negotiating with North Korea, endure that process? There seems to be a long path ahead for a short-tempered president who has opened the Pandora's box of negotiations with North Korea.

*Source: Kan Kimura is a professor at Kobe University, The Diplomat, 15 July 2018.*

OPINION- Ding Rongjun

**This is What the Art of the Nuclear Deal Looks Like**

After meeting with his North Korean counterparts in Pyongyang on July 6, Secretary of State Mike Pompeo characterized the talks as “productive,” emphasizing that “progress” was made. But in stark contrast to that, North Korea’s Foreign Ministry issued a statement denouncing the Trump administration for its “unilateral and gangster-like demand for denuclearization.” The situation has led many to doubt American and North Korean resolve and sincerity towards denuclearization. Quite the contrary, the current state of affairs points to Donald Trump and Kim Jong-un’s unique cooperation in tackling the multiple external and internal factors at hand.

Achieving the end state of denuclearization requires a firm commitment by both leaders. But at the same time, Trump and Kim face huge audience costs at home. Even for an authoritarian ruler like Kim, reverting to a hardline policy of achieving nuclear status can risk tarnishing his infallibility and national image as a strongman to the people, or incur discontent and even conflict among his relatively small winning coalitions in the Workers’ Party of Korea and Korean People’s Army.

In this context, it is not surprising that Trump described Kim as someone who “loves his people” and “loves his country very much” after the historic summit in Singapore on 12 June 2018. Trump also faces credible domestic audience costs. For one thing, Trump needs to achieve at least some progress to prove that his foreign policy is working, and that it is in America’s best interests that he prevail after the mid-term elections.

Last week, National Security Advisor John Bolton said the United States has a plan to dismantle North Korea’s nuclear program in a year. Speaking in Tokyo on July 8 following his visit to Pyongyang, Pompeo denied accusations that the United States has softened its stance, arguing that Washington is still demanding the “complete, verifiable and irreversible denuclearization (CVID)” of North Korea.

**Ultimately, the two countries are working towards expanding the pie. North Korea needs to show internally that he is not being forced to dismantle nuclear weapons, while at the same time showing the international society that he is still committed to the talks. The United States, on the other hand, needs to show that the process needs more time, and that Trump remains indispensable.**

In this context, the United States and North Korea seems to be talking past each other. But ultimately, the two countries are working towards expanding the pie. North Korea needs to show internally that he is not being forced to dismantle nuclear weapons, while at the same time showing the international society that he is still committed to the talks. The United States, on the other hand, needs to show that the process needs more time, and that Trump remains indispensable.

How will the talks play out? The nuclear negotiation between Washington and Pyongyang is asymmetrical in nature. Although we tend to view the issue as a win-win game, it is not. Kim has much more to lose: leaving aside audience costs, the North also risks regime survival. That is why in negotiations involving security issues it was always prudent for the weaker side to adopt a simultaneous, phased approach, because a lump-sum deal could always provoke commitment problems. And because there is no higher authority to see the deal through in international politics, third-party mediators factor in. That is why Pyongyang has turned to Seoul and Beijing amid this process.

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In this context, it is still hard to predict the outcomes of US-DPRK nuclear negotiations. But one thing seems sure: the process will muddle through for some time, during which the United States will push for speed, demanding, at the least, full access to

outside verification of North Korea's nuclear weapons and facilities, which North Korea will deny for sovereignty reasons. However, even if North Korea does not succumb to American demands, Trump will not go denouncing the regime on Twitter or resort to military threats. That is why the North Korean Foreign Ministry has said "we still value the trust we have for President Trump."

The real game will be after the midterm elections, when Trump's reelection will be on the line. If North Korea does not make substantial progress by that time, then Trump will be forced to revert his old game of chicken policies. Even if that means staging a war, at least Trump will have acquired the moral high ground. It may even help his reelection.

*Source: Ding Rongjun is assistant professor in diplomacy at Tongji University, <http://nationalinterest.org/>, 12 July 2018.*

**OPINION- Alan J. Kuperman**

**How Not to Reduce Japan's Plutonium Stockpile**

Facing US pressure and the expiration on July 16 of the initial term of the 1988 US-Japan nuclear agreement, the Japan Atomic Energy Commission (JAEC) is expected to propose plans to reduce Japan's massive 48-ton stockpile of unirradiated plutonium by boosting the use of plutonium mixed-oxide (MOX) fuel in nuclear power reactors.

However, this plan directly contradicts the lessons from a yearlong study that I recently led of all countries that have commercially used or produced MOX for thermal nuclear power plants. We found that five

of the seven countries had already abandoned MOX fuel due to concerns about economics, security, and public acceptance.

Thus, the JAEC has correctly identified the problem but not the solution. Forty-eight tons of plutonium is enough for 5,000 nuclear weapons, and Japan has planned to produce up to eight tons more every year by starting operation in 2021 of a domestic reprocessing plant. Neighboring countries understandably worry that Japan is preserving a nuclear-weapons option, so they threaten the same.

The JAEC's plan, to reduce plutonium by increasing MOX use, is wrong for at least four reasons: it is impossible, counterproductive, slow, and unsuitable for most domestic plutonium. First, Japan cannot accelerate use of MOX fuel because it lacks the reactors to do so. Only nine Japanese reactors are licensed for MOX. Of those, only three currently can operate with such fuel: Takahama-3 and 4, and Genkai-3. Together they can irradiate only 1.5 tons of plutonium annually — barely 3

percent of Japan's stockpile — too slow for international concerns.

Second, even if Japan could increase MOX use — by licensing other reactors — it would be counterproductive by spurring calls to complete and then operate domestic reprocessing and MOX fabrication facilities. In that scenario, Japanese officials claim they would need a five-year domestic "working stock" of plutonium — up to 40 tons — which would magnify

not solve the problem.

Third, other tactics could reduce the stockpile

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quicker. Nearly half of Japan's stockpile, 22 tons, is in Britain, which has offered to take ownership for a price, as it did for Germany, Spain, Sweden and the Netherlands. Overnight, Japan could cut its stockpile by 46 percent. Japanese utilities (and their customers) would also save money by avoiding the expense of storing plutonium abroad and then fabricating it into MOX, which costs eight times more than traditional uranium fuel.

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Fourth, most of the domestic ten tons of plutonium cannot now be used in Japan's reactors. Six tons is separated plutonium, but Japan lacks a commercial facility to fabricate MOX fuel. Another two tons was previously fabricated into fuel for a now canceled type of reactor and won't work in existing plants. Japan should develop technology to dispose of these eight tons as waste, in coordination with the United States, which already is disposing of 40 tons of its own plutonium as waste.

By transferring the British plutonium, and disposing of unusable domestic stocks, Japan would be left with a more manageable quantity of 15 tons in France and two in Japan, which could be dispositioned faster using both MOX and disposal as waste. Japan could thus eliminate its plutonium stockpile in perhaps five years, if it also terminated the overpriced, dangerous, and incomplete domestic facilities for reprocessing and MOX fabrication. Japan could switch to disposing its spent fuel as waste, exactly as all other countries (except France) that previously used MOX in multiple thermal reactors already have done. Assuming Japan does not secretly wish to preserve a nuclear-weapons option, this roadmap could reduce its plutonium stockpile rapidly. If Japan instead expands use of MOX fuel as the JAEC

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recommends, thereby increasing its domestic plutonium, neighboring countries will understand the message and respond accordingly.

*Source: Alan J. Kuperman is associate professor at the LBJ School of Public Affairs, University of Texas at Austin, and founding coordinator of the Nuclear Proliferation Prevention Project. <https://english.kyodonews.net/>, 13 July 2018.*

*kyodonews.net/, 13 July 2018.*

#### OPINION- Li Guofu

#### Will the Iran Nuclear Deal Survive?

There would be many opportunities for Chinese companies to do business in Iran. Earlier in May 2018, the Trump administration withdrew from the Iran nuclear deal (the Joint Comprehensive Plan of Action, JCPOA) and threatened to re-imposed the highest level of economic sanctions on Iran, unless Iran would meet US demands. Fearing the severe sanctions from the US, the large companies from European countries as well as the US allies announced that they would withdraw their business in Iran, which could provide a lot of chances for the small and medium Chinese companies, especially those private companies which do not have any business in the US, or do not have any connection with the US financial system. But as the Chinese proverb goes, the benefits come with the risks. Under the severe US financial sanctions, the Chinese companies doing business in Iran could have many unexpected problems, for example, they may find that it will be very difficult to get their money out of Iran.

No doubt that US withdrawal has put the Iranian nuclear deal in jeopardy, but at present, it has many reasons to convince people to believe that it could survive. Firstly, the Iran nuclear deal was

a multilateral agreement endorsed by the UNSC Resolution 2231. Since its adoption, Iran has earnestly implemented it, which has been verified by the IAEA 11 times. In the past three years, the Iran nuclear deal has been proven to be effective in easing the nuclear crisis and safeguarding the international non-proliferation regime, and the failure to keep and implement the Iranian deal would have a seriously negative impact on the regional situation.

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Secondly, Europe is grappling with the US withdrawal from the Iran nuclear deal. For its safety and strategic interests, Europe attached particular importance to the agreement. The Middle East is a European neighbor, after eight years of “the Arab turmoil” has a very negative impact on the European countries, therefore, Europe would like to see a relatively stabilized Middle East. Iran is a major power in the region and has played an irreplaceable role in the regional stability. Europe was well aware that, after US withdrawal, if Iran did not get any economic interests from the deal, Iran would also quit from the nuclear agreement. Therefore, Europe has made it clear to Iran that as long as Iran continued to comply with deal obligations, Europe would guarantee economic benefits under the agreement. But at the same time, Europe did not want to have a head-on confrontation with the United States, further worsening the traditionally close relations between the two sides.

**Europe is grappling with the US withdrawal from the Iran nuclear deal. For its safety and strategic interests, Europe attached particular importance to the agreement. The Middle East is a European neighbor, after eight years of “the Arab turmoil” has a very negative impact on the European countries, therefore, Europe would like to see a relatively stabilized Middle East.**

On the one hand, some of the big European multinationals have been withdrawing from Iran to avoid harsh US sanctions. On the other hand, Europe and Iran have embarked on a number of rounds of negotiations to find a solution that could compensate for Iran's losses. After weighing the pros and cons, I estimated that a package of a proposal would be put forward to give Iran some economic benefits.

Thirdly, Iran is likely not to withdraw from the nuclear deal. At present, Iran's consideration of the nuclear deal is far from the economic interest but more important from the political and security aspects. In the face of an unprecedented US crackdown on Iran, staying in the deal, Iran will have the support of the entire international community, which would provide Iran with a relatively secure global environment. So while Europe's future economic security to Iran will be far below Iran's demands, I believe that Iran will accept it, because there is no other better choice for Iran.

*Source: Li Guofu is the Director of Middle East Research Center at China Institute of International Studies. The article reflects the author's opinion, and not necessarily the views of CGTN. <https://news.cgtn.com/>, 13 July 2018.*

**OPINION- Andrew Walworth**

**The Perils of Confusing Nuclear and Cyber Strategy**

Today, cyber weapons are as disruptive a technology as the atomic bomb, requiring a new round of innovative thinking. The task before us is to make sense of an entirely new order that blends the physical and non-physical worlds into a seamless and seemingly limitless battle space.

The implications of Hiroshima and Nagasaki – if this was to be the new way of battle — were terrifying. Within a year, the publication of Bernard Brodie's “The Absolute Weapon” anticipated the doctrine of massive retaliation. The generation of strategists that first

grappled with the awful power of nuclear weapons had to reconsider every aspect of war, “thinking about the unthinkable,” in futurist Herman Kahn's most famous formulation.

Despite several close calls, Armageddon did not come. But with cyber weaponry, we now must manage to be lucky again. One way to help our chances is to not equate the two threats. This is a new technology, requiring new paradigms. David Sanger, author of "The Perfect Weapon," expressed it to me this way in a recent interview: "All the questions that come up in nuclear deterrence are the same as the questions that come up in cyber — and every one of the answers is different." Here are five ways in which cyber weapons differ from nuclear armaments — and, for that matter, why they may be unlike anything that military strategists have previously encountered.

1. Cyber is not a "domain" of war; it is a new reality. The term "domain" is important in military parlance, and of relatively recent vintage. It was first used in official US doctrine in 2000, and it implies a separate and unique sphere of conflict. The first four "domains" are land, sea, air, and space — each with its own military branch that has (or may soon have) authority within that domain: Army, Navy, Air Force and now a proposed Space Force. In 2009, the US declared cyber "the fifth domain," and NATO followed suit in 2016. This may be misguided. Cyber, by definition, transcends the physical world. If the primogenital strategic domain is land, there is a logical progression as technology advances and adds sea, air and then outer space, expanding the physical theater of war. But cyber doesn't merely extend and expand the current battlespace, it thoroughly redefines it. While you can imagine land battles that don't include sea power, or you can imagine air war without engaging space weaponry, it is now impossible to think about any form of conflict without including cyber strategy, if only because everything runs on networked computers. Cyber doesn't exist in its own dimension; it affects every other one.

2. Arms control won't work. Except for a few early strategists who considered the utility of nuclear weapons on the battlefield, the major debate over

nuclear weapons quickly moved to how to deter an attack, and how to control the proliferation of nuclear weapons. Arms control in the nuclear age has — knock on wood — been surprisingly effective.

While the 1970 the NPT didn't freeze the number of nuclear powers entirely, it certainly slowed the growth of membership in the club. With a limited number of nuclear powers in the world, walking nations back from the nuclear brink via carefully constructed bilateral and multilateral agreements seems possible. But an arms control regime for cyber? Forget about it. There are already too many actors with access to cyber weaponry. And they're not all nation-states. And nobody's honest about it anyway, which makes treaties problematic. How would such pacts even be enforced?

3. Time is not on our side. The first atomic bombs were dropped in 1945. While nuclear strategists started scribbling their thoughts almost immediately, it wasn't until 1962 — 17 years later — that the term "mutual assured destruction" was coined by Donald Brennan of the Hudson Institute. It took that long to settle on the doctrine that became the central organizing principle for strategic thinking and debate. Today, we don't have the luxury of time. The development of cyber weapons is galloping along at, well, cyber speed. Herman Kahn lamented in the 1960s that civilian analysts couldn't keep up with advancements in offensive missile technology, but that was nothing compared to the furious pace of today's advances in cyber.

4. Deterrence is dead, but a first strike isn't what it used to be. In nuclear strategy, the big fear is a massive preemptory strike, so the entire point is to keep your adversary from firing first. You do this by making sure that you have a survivable second-strike capability — nuclear weapons that are hardened or hidden to the point where the other guy could never be sure that if he struck first, he would truly disable you. As a result, it doesn't make sense to unleash a holocaust on your enemy, because within minutes his surviving

**All the questions that come up in nuclear deterrence are the same as the questions that come up in cyber and every one of the answers is different.**

missiles would obliterate you and yours. In this way a delicate “balance of terror” is maintained between nuclear adversaries — and it has worked surprisingly well.

In cyberspace, there is no advantage to a massive first strike – or at least none compared to the advantages obtained by keeping up a low-grade, constant level of harassment, espionage, and disinformation. A “Cyber Pearl Harbor” that some have warned about — that is, a massive, out-of-the-blue cyberattack that would disrupt critical infrastructure — makes little strategic sense. In fact, cyber weapons provide the ultimate “short-of-war” arsenal, and are deployed along a continuum that includes espionage, commercial theft, blackmail, harassment, disinformation and outright destruction. Countries – including the United States – are already constantly probing one another’s networks, gathering information, stealing secrets or planting bugs that are just lurking, ready to be turned into viruses at the opportune time. “You have to defend on the presumption of breach. They’re getting inside the wire. Get over it. Operate while under attack.”

5. Cyber conflict is already here. Beyond the atomic bombs dropped on Hiroshima and Nagasaki, all nuclear strategy is based solely on theory. In contrast, we’re already in a cyber conflict on many levels. We bemoan the Russians interference in our election system. We are furious that the North Koreans hacked into Sony to fry its system and steal and publish its embarrassing emails. We call for tariffs and trade barriers when the Chinese steal intellectual property.

...In short, cyber weapons require an entirely new level of strategic thinking. The oldest (and perhaps truest) cliché in military strategy is the one about generals always preparing to fight the last war. Today, we can’t afford to have strategists using

the last generation’s mental maps. The cyber war is already here; we’re already in it, and the sooner we come up with strategies, norms, and doctrines that reflect this new world, the better.

*Source: Andrew Walworth is a senior fellow at the Murrow Center for a Digital World at the Fletcher School of Law & Diplomacy and co-host of the podcast “Real Clear Cyber Today.” <https://www.realclearpolitics.com/>, 12 July 2018.*

## NUCLEAR STRATEGY

### INDIA

#### **India to Induct Powerful Agni V Missiles that will Bring Entire China within its Nuclear-Strike Zone**

India is in the process of inducting the first batch of its intercontinental ballistic missile system — Agni-V — which will bring targets across China within its range, and is expected to significantly bolster the country’s military prowess.

The missile system, with a strike range of 5,000 km and capable of carrying nuclear warhead, is being inducted into the elite Strategic Forces Command (SFC), official sources said.

They said a series of user trials is being conducted before the country’s most sophisticated weapon is handed over to the SFC. Defence experts said the missile is capable of bringing targets across China, including its prominent cities like Beijing, Shanghai, Guangzhou and Hong Kong, under its range. Last month in June 2018, Agni-V was successfully test-fired off the Odisha coast and the sources said a number of other pre-induction tests are being planned in the next few weeks.

“It is a strategic asset which will act as a deterrent. We are at the fag end of the strategic project,” said an official, who is part of the Agni-V programme. He said it is the most advanced

**India is in the process of inducting the first batch of its intercontinental ballistic missile system Agni-V which will bring targets across China within its range.**

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weapon in its series as it has latest technologies for navigation and its capability of carrying nuclear warhead is much superior.

The first batch of Agni-V will be handed over to the SFC "soon", the sources said, while declining to elaborate further on the closely-guarded defence project. The missile is being inducted at a time when India's neighbourhood is witnessing evolving security threats. Very few countries, including the US, China, Russia, France and North Korea, have intercontinental ballistic missiles. In its armoury, India currently has Agni-1 with a 700-km range, Agni-2 with a 2,000-km range, Agni-3 and Agni-4 with a 2,500-km to more than 3,500-km range.

...All the five trials were successful. As part of its efforts to enhance the country's defence capabilities, the government is also working on several key projects including integrating the Brahmos supersonic cruise missile on 40 Sukhoi combat aircraft.

The air-launched variant of the Brahmos, the world's fastest supersonic cruise missile, was successfully test-fired from a Sukhoi-30 combat jet on 22 November 2017, marking a major milestone to enhance the precision strike capability of the air force. The defence ministry is now expediting the process to integrate the Brahmos missile on 40 Sukhoi combat aircraft. The fleet of 40 Sukhoi jet is undergoing structural modifications at the State-run aerospace major Hindustan Aeronautics Ltd (HAL) for integration of the missile on them.

Source: <http://www.dnaindia.com/i>, 01 July 2018.

## **USA- RUSSIA**

### **Trump, Putin May Agree to Resume Stalled Arms Control Talks**

When Donald Trump first spoke to Russian President Vladimir Putin after becoming US president, he reviled the "New Start" treaty - a

pillar of arms control - as a bad deal for America. When the two meet in Helsinki on 16 July 2018 they are likely to touch on whether to extend that agreement to 2026 and what to do about another pact, the Intermediate-Range Nuclear Forces Treaty (INF) to try to dampen a high-risk nuclear rivalry between the two former Cold War foes.

Former US officials, arms control experts and diplomats do not expect a decision on New Start renewal or the INF Treaty at Helsinki but rather, at best, a deal for experts to take up the issues. "The most likely outcome is the restarting of the strategic stability talks between the US and Russia," said Frank Rose, a former US assistant secretary of state for arms control now at the Brookings Institution...

...An agreement to reopen talks would allow both sides to argue that they are tackling a major issue, a result analysts said might appeal to both leaders' egos, while leaving it to lower-level officials to grapple with the nitty gritty. Ahead of the summit, Russian diplomats have stressed the need for strategic stability talks, saying existing arms control treaties are fraying at the edges and they fear Washington will withdraw from the INF treaty. Both sides accuse one another of violating the treaty.

...US Ambassador to Russia Jon Huntsman told reporters Trump and Putin will likely discuss INF and New Start but would not be drawn on whether they might strike any deals. Russian diplomats have repeatedly spoken of the need to launch talks on strategic nuclear stability. Kremlin aide Yuri Ushakov said the summit might produce a joint statement that would set out actions the two countries would take to maintain international stability and security.

...A second former senior US official argued Russia needs New Start extended more than the United States does, in part because of its budgetary constraints, and worried Trump could agree to this without pressing for Russian compliance on the INF pact...

**In its armoury, India currently has Agni-1 with a 700-km range, Agni-2 with a 2,000-km range, Agni-3 and Agni-4 with a 2,500-km to more than 3,500-km range.**

**Russia needs New Start extended more than the United States does, in part because of its budgetary constraints, and worried Trump could agree to this without pressing for Russian compliance on the INF pact.**

The United States has asserted since 2014 that Russia has violated the INF Treaty by developing the SSC-8 ground-launched cruise missile system. In 2017, Washington said it believed Moscow had not merely developed but deployed the missile, threatening US allies in NATO and US forces in Europe...Rumer suggested Helsinki could yield something like Trump's June meeting with North Korean leader Kim Jong Un, where they issued a general statement on denuclearization and left the details to others....

Source: <https://www.reuters.com/>, 06 July 2018.

## **BALLISTIC MISSILE DEFENCE**

### **JAPAN**

#### **Japan Picks Lockheed Martin Radar for Missile Defense System: Ministry Official**

Japan has selected Lockheed Martin Corp's advanced radar for its multibillion-dollar missile defense system, a Japanese defense ministry official with direct knowledge told Reuters...Reuters reported last week that the candidates for the radar system were Raytheon Co's SPY-6 and a version of Lockheed Martin Long Range Discrimination Radar (LRDR).

The decision on the radar supplier means that Japan can add the purchase to a defense budget proposal slated for release in August 2018, three sources with knowledge of the plan told Reuters previously. They also spoke on condition of anonymity.

The two Aegis Ashore sites will likely cost at least twice as much as Japan's initial estimate of \$2 billion, the sources said. President Donald Trump has urged Tokyo to buy more US military equipment and other goods to help balance a trade deficit with Japan...Japanese military planners still see North Korea as an immediate danger. They also view China's growing military power as a long-term threat.

"North Korea needs to show it is making concrete steps to abandon its nuclear and missile programs, and it has yet to do so," Japan's Minister of Defence

Itsunori Onodera said at a press briefing... The Japanese defense official said that Lockheed's radar had been selected due to its search capabilities and because its lifecycle cost would be less than the Raytheon system....

Source: Reporting by Nobuhiro Kubo; additional reporting by Tim Kelly; Writing by Chang-Ran Kim and Linda Sieg; Editing by Michael Perry and Darren Schuettle, <https://www.reuters.com/>, 03 July 2018.

## **NUCLEAR ENERGY**

### **INDIA**

#### **Hoping for Support at NSG: India's OPCW Vote a Message to China**

India's decision last week to vote against a UK sponsored proposal at the special meet of the

Organisation for the Prohibition of Chemical Weapons (OPCW) that favoured Russia was a simultaneous message to both the West and China.

While India's explanation of the vote made it clear that the country

considered UK's proposal incomplete as it would grant the Chemical Weapons Convention director general unprecedented and unchecked powers, it also sent a subtle message to China which also voted against the proposal along with India. It is hoped that this show of solidarity would help dilute China's opposition to India's proposed membership of the Nuclear Suppliers Group. China's opposition remains the biggest roadblock to India's entry into the elite club.

India's stand at the OPCW is also a reflection of Russia, India and China adopting similar approaches on key global issues amid volatility in global politics. Analysts said that the three countries might develop common positions on other issues of common interests as well, even as India would seek to strike a balance with its relationship with the Western powers led by the United States.

**It is hoped that this show of solidarity would help dilute China's opposition to India's proposed membership of the Nuclear Suppliers Group. China's opposition remains the biggest roadblock to India's entry into the elite club.**

India voted against the UK proposal along with 23 other countries while 82 member states of the OPCW voted in favour of the proposal. The proposal needed support of 71 member states. Ahead of the vote India had explained to the UK and its supporters that India's vote would be based on its principled position that the new proposal violated the CWC structure and that India was not satisfied with the UK proposal.

"We have studied this draft very carefully and have consulted widely including with the drafters and the main co-sponsors of the draft decision. However, we believe that on an issue of such grave importance, the consultations conducted by the sponsors remain incomplete," said Venu Rajamony, India's ambassador to the Netherlands and permanent representative to the OPCW...

In his statement, Rajamony further said, "While the convention gives primacy and oversight to the executive council and the conference of states parties over the functioning of the technical secretariat, this decision will grant the director general, as an individual, unprecedented and unchecked powers. This opens itself to partisan use of the institution of the director general." He said that assessed from the point of view of legality and natural justice, this appeared to be deeply problematic as the investigator also assumed the role of the judge.

"Therefore, India cannot justify its action in joining the effort for the creation of such a mechanism which is not in keeping with the provisions of the convention. As our concerns have not been addressed by the draft decision, India has decided to vote against the draft decision," he said.

Experts said that the indirect message to China could help soften the Xi Jinping regime's stance

over India's entry into the NSG. China, the only nation opposing India's entry, has been suggesting that Pakistan be included as well. Unlike India, Pakistan is not yet party to requisite IAEA provisions to join the NSG. Since 2016, memberships of other three export control regimes – MTCR, Wassenaar Arrangement and Australia Group – have been granted to India.

Source: <https://economictimes.indiatimes.com/>, 02 July 2018.

## **USA**

### **US DoE Confirms Funding for Nine Nuclear Projects**

The US Department of Energy (DoE) has chosen nine nuclear projects to receive a total of \$20m in funding for research and development purposes. Each of the projects is currently investigating advanced nuclear technologies and has been selected by the DoE for its perceived potential to advance nuclear power in America.

These nine mark the second group chosen for funding under the DoE Office of Nuclear Energy, which implements such schemes for cost-shared projects developing novel reactor designs. The first group was announced in April 2018, with 13 projects receiving \$60m.

A funding opportunity was also released last December 2017, with the money to be made available in fiscal 2018 under the DoE office's US Industry Opportunities for Advanced Nuclear Technology Development. US Energy Secretary Rick Perry said the scheme is part of the department's investment into the future of US nuclear power, saying the energy source 'is a critical part of our all-of-the-above energy strategy for the country', and highlighting the importance

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of early-stage research to ensure such technologies are given the greatest opportunity for successful development.

There are three possible funding pathways under which projects can be considered for financing; first-of-a-kind nuclear demonstration readiness projects, advanced reactor development projects and regulatory assistance grants. Under the former category, \$7m has been given to NuScale for the second phase of its small modular reactor (SMR) project, specifically for activities such as completing the independent verification and validation licensing report, completing the reactor building design optimisation, and level sensor prototypic testing.

Funds awarded under the advanced reactor development project pathway include \$400,000 for the conceptual engineering of an SMR plant that uses lead-bismuth fast reactor technology, currently under development by Columbia Basin Consulting Group. Additionally, around \$1.9m is to be given to GE-Hitachi Nuclear Energy for its work identifying methods to reduce the construction and maintenance costs of its BWRX-300 small light water reactor concept.

Around \$1.1m will be given to the Electric Power Research Institute, which is currently working to improve the models used to estimate the post-accident radionuclide releases from integral pressurised water reactors. Just over \$2m has been awarded to Fluide Energy and the Pacific Northwest National Laboratory, for their research into the use of nitrogen trifluoride to remove uranium from a molten-salt fuel mixture, while around \$6m has been put towards Holtec International's research on hybrid laser-arc welding. It is hoped that the latter technology will be useful in the fabrication

of SMRs, as well as other nuclear components.

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Technology development vouchers have been awarded to two companies as part of the DoE's Gateway for Accelerated Innovation in Nuclear (GAIN) initiative, a scheme that launched in 2015. These are Yellowstone Energy and ThorCon US, the former of which will receive \$160,000 and the latter of

which will receive \$400,000. The scheme also allows the chosen companies to access DoE research and development infrastructure. Application reviews and selection processes are to be conducted over the next five years, and approximately \$30m additional funds will be awarded in the next quarterly proposal cycle.

*Source: Scarlet Evans, <https://www.power-technology.com/>, 12 July 2018.*

## **NUCLEAR COOPERATION**

### **RUSSIA-CHINA**

#### **Russia to Build Two New Nuclear Power Units in China**

Moscow and Beijing may sign agreements to build additional two power units of 1,200-Megawatt units in China by 2026 and 2027, as per reports by Russia's state nuclear power corporation

**Moscow and Beijing may sign agreements to build additional two power units of 1,200-Megawatt units in China by 2026 and 2027, as per reports by Russia's state nuclear power corporation Rosatom.**

Rosatom....At least two more units will become the subject of separate agreements between us and the People's Republic of China," said Alexey Likhachev, CEO of Rosatom in a meeting with Prime Minister Dmitry

Medvedev..In a meeting with Chinese President Xi Jinping, last month ( June 2018) , President Vladimir Putin mentioned that energy is the most important sector of cooperation.

*Source: <https://www.moneycontrol.com/>, 05 July 2018.*

**USA- EUROPE- CHINA**

**A Double First in China for Advanced Nuclear Reactors**

After several decades of engineering, construction flaws and delays, and cost overruns—a troubled birth that cost their developers dearly—the most advanced commercial reactor designs from Europe and the US just delivered their first megawatt-hours of electricity within one day of each other. But their benefits—including safety advances such as the AP1000’s passive cooling and the EPR’s airplane-crash-proof shell—may offer too little, too late to secure future projects.

Both of the design debuts happened in China late last month. On 29 June 2018, a 1,400-MW EPR designed in France and Germany synced up to the grid at the Taishan nuclear power plant. The next day the US-designed 1,117-MW AP1000 delivered first power at China’s Sanmen plant. Both projects are coming online years behind schedule, and they are still at least several months away from full commercial operation. But the real problem for the AP1000 and the EPR are the designs’ unfinished Western debuts.

Delays are commonplace in the nuclear industry. For instance, the Korean-built nuclear reactors originally due to begin starting up last year in the United Arab Emirates were recently pushed back to late 2019 or early 2020. But the AP1000 and EPR troubles are in a different league.

The AP1000 is designed to passively cool itself during an accidental shutdown, theoretically avoiding accidents like the one at Japan’s Fukushima Daiichi. But AP1000 developer Westinghouse declared bankruptcy last year in

2017 due to construction troubles, particularly at dual-reactor plants for utilities in Georgia and South Carolina. The latter abandoned their pair of partially built AP1000s after investing US \$9 billion. The Georgia plant, initiated in 2012, is projected to be completed five years late in 2022 and at a cost of \$25 billion—\$11 billion more than budgeted.

Delays for the EPR, whose dual-layered concrete shield protects against airplane strikes, contributed to the breakup of Paris-based nuclear giant Areva in 2015. And the first EPR projects in France and Finland remain troubled under French

utility Electricité de France (EDF), which absorbed Areva’s reactor business, Fromatome. The Finnish plant, started in 2005 and expected to take four years, is currently slated for startup next year, and deadlines continue to come and go. In June 2018, Finnish utility Teollisuuden Voima Oyj announced that startup had slid another four months to September 2019.

The troubled EPR and AP1000 projects show that US and European firms have lost competence in nuclear construction and management. “It’s no coincidence that two of the four AP1000s in the US were abandoned, and that the EPRs that started much earlier than Taishan’s in Finland and France are still under construction,” says nuclear energy consultant Mycle Schneider, principal author of the annual World Nuclear Industry Status Report. “The Chinese have a very large workforce that they move from one project to another, so their skills are actually getting better, whereas European and North American companies haven’t completed reactors in decades,” says Schneider.

This loss of nuclear competence is being cited by

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nuclear and national security experts in both the US and in Europe's nuclear weapons states as a threat to their military nuclear programs. The White House cited this nuclear nexus in a May 2018 memo instructing Rick Perry, the Secretary of Energy, to force utilities to buy power from unprofitable nuclear and coal plants. The memo states that the "entire US nuclear enterprise" including nuclear weapons and naval propulsion, "depends on a robust civilian nuclear industry."

A letter sent to Perry last month by 75 former US military, industrial, and academic leaders adds to the nexus argument, citing a statement from the Trump administration's 2018 Nuclear Posture Review about the United States' inability to produce enriched uranium for nuclear weapons. "Re-establishing this capability will be far easier and more economical with a strong, thriving civil nuclear sector," write the signatories.

Heavy dependence on China, meanwhile, puts the global nuclear industry in a vulnerable position. Total nuclear generation declined last year in 2017 if one takes out China, notes Schneider. And he says a Chinese nuclear growth gap is coming, since it hasn't started building a new reactor in 18 months. For more than a decade, the AP1000 has been the presumed successor to China's mainstay reactors, which employ a 1970s-era French design. Areva's EPR was a fallback option. The Chinese government may now wait to see how the first reactors actually operate before it approves a new wave of reactor construction.

All the while, nuclear is falling further behind renewable solar and wind power. As Schneider notes, the 3.3 GW of new nuclear capacity connected to the grid worldwide in 2017 (including three in China and a fourth in Pakistan built by Chinese firms) pales in comparison to the 53 GW of solar power installed in China alone.

*Source: Author- Peter Fairley, <https://spectrum.ieee.org/>, 05 July 2018.*

## **SOUTH KOREA- SAUDI ARABIA**

### **South Korea's KEPCO Shortlisted to Bid for Saudi Nuclear Project**

State-run utility Korea Electric Power Corp (KEPCO) had been shortlisted to bid for a nuclear project in Saudi Arabia along with the United States, France, China and Russia, South Korea's energy ministry said... "We were informed by our Saudi counterpart, King Abdullah City for Atomic and Renewable Energy, that KEPCO was shortlisted for a nuclear project in Saudi Arabia," the ministry said in a statement. The statement said the winner of the tender was expected to be chosen in 2019.

In May 2018, Saudi Arabian Energy Minister Khalid al-Falih met South Korean Energy Minister Paik Ungyu in Seoul. Falih told reporters on the sidelines of an industry event that he was "optimistic" about South Korea being on the tender shortlist.

In 2009, a South Korean consortium led by KEPCO won an \$18.6 billion deal to

construct four nuclear plants in the UAE, the country's ever nuclear export success. KEPCO was also selected as a preferred bidder in December last year for Toshiba's NuGen nuclear project in Britain and the Korean company planned to talk with Toshiba to buy a stake in the project.

*Source: Reporting by Jane Chung and Cynthia Kim. Editing by Jane Merriman, <https://www.reuters.com/>, 01 July 2018.*

## **NUCLEAR DISARMAMENT**

### **GENERAL**

#### **Nuclear Ban Treaty Lacks Enough Numbers to Become Law**

Secretary-General Antonio Guterres welcomed the first anniversary of the adoption of the Treaty on the Prohibition of Nuclear Weapon, which he previously called an "essential pillar" of international peace and security, and the "heart" of the nuclear disarmament and non-proliferation regime.

"The treaty's adoption on 07 July 2017 by 122 States demonstrated the strong and legitimate international support that exists for a permanent end to the threat posed by nuclear arms," Deputy Spokesperson Farhan Haq said in a statement on behalf of the UN chief. The objective of the landmark international treaty is to prevent the spread of nuclear weapons and weapons technology, to promote cooperation in the peaceful uses of nuclear energy and to further the goal of achieving nuclear disarmament and general and complete disarmament. It represents the only binding disarmament commitment in a multilateral treaty by the nuclear-weapon States.

Haq noted that to date, it has 59 signatures and 11 ratifications. Once 50 States have ratified the treaty, it will enter into force, "becoming an important element of the nuclear disarmament and non-proliferation regime." "The United Nations remains committed to the total elimination of nuclear weapons as its highest disarmament priority," the statement concluded.

Source: <https://nation.com.pk/>, 08 July 2018.

## **NUCLEAR PROLIFERATION**

### **NORTH KOREA**

#### **North Korea could Slow Down Denuclearisation as it Builds Economic Ties with China**

Pyongyang's denuclearisation efforts may slow down as the reclusive state is apparently trying to boost its nuclear deterrence capability and strengthen economic ties with Beijing, according to South Korean officials. The assessment came

after reports suggesting North Korea was upgrading its nuclear facilities and amid ongoing talks on economic cooperation between Beijing and Pyongyang.

"Beijing has promised solid economic support to Pyongyang throughout a series of bilateral summits held in China," a senior South Korean diplomatic source said, adding that it was an attempt by the North to bring about economic change before it had fully denuclearised...Pyongyang could be stalling as it seeks to build trust with long-time enemy the US before abandoning the nuclear programme that gives the regime security, the source added.

North Korean leader Kim Jong-un made his first visit to China in March 2018, meeting Chinese President Xi Jinping in Beijing. He then met Xi in the northeastern city of Dalian in May, and again in Beijing in June 2018, and Chinese state media reported that economic cooperation was on the agenda. North Korean state media reported that Kim had visited a cosmetics factory in the

Sinuiju special economic zone, opposite Chinese port city Dandong. He also sent his vice-minister of external economic affairs, Ku Bon-tae, to Beijing on, in the latest sign that Pyongyang is keen to push its economic agenda before it has completed the denuclearisation process. Ku discussed energy cooperation with Chinese officials, according to South Korea's Yonhap news agency.

Pyongyang has long demanded a "phased and synchronous" approach to denuclearisation, and for Washington to ease sanctions during, not after, the process. That would mean the North

**Once 50 States have ratified the treaty, it will enter into force, "becoming an important element of the nuclear disarmament and non-proliferation regime.**

**Pyongyang has long demanded a "phased and synchronous" approach to denuclearisation, and for Washington to ease sanctions during, not after, the process. That would mean the North could continue its nuclear programme if it did not receive what it considered were sufficient economic incentives. According to satellite images taken by Planet Labs and analysed by the Middlebury Institute of International Studies at Monterey, North Korea has continued construction at the Chemical Material Institute, a key ballistic missile plant near the city of Hamhung.**

could continue its nuclear programme if it did not receive what it considered were sufficient economic incentives.

According to satellite images taken by Planet Labs and analysed by the Middlebury Institute of International Studies at Monterey, North Korea has continued construction at the Chemical Material Institute, a key ballistic missile plant near the city of Hamhung.

North Korea producing more nuclear fuel at multiple sites, according to US intelligence agencies. Modifications have also been made to the Yongbyon nuclear site, monitoring group 38 North reported last week. It said commercial satellite images showed work on the secondary cooling loop of its 5-megawatt plutonium reactor appeared to be complete.

...Seoul has played down reports of nuclear upgrades – focusing instead on sporting and cultural exchanges

between the two Koreas as it tries to keep up the momentum for peace – some officials have expressed concern that the denuclearisation process could be faltering. “It will be difficult for North Korea to fully denuclearise” in the short term, a separate

South Korean diplomatic source said, adding that Kim could be trying to “deflect attention” with his economic push... “Denuclearisation could take a very long time if Pyongyang doesn’t get what it wants – and that’s for sanctions to be lifted and normalisation of the diplomatic relationship.

“But conversely, if North Korea really wants to focus on the economy it will be better off giving up its nuclear programme fast, because China is not likely to violate the UN sanctions regime.”

*Source: <https://www.scmp.com/>, 03 July 2018.*

### **Trump says Nuclear Talks with North Korea ‘Going Well’**

US President Donald Trump said that talks with North Korea were “going well” as US officials seek

to reach an agreement with Pyongyang over a denuclearization plan following last month’s summit between Trump and North Korean leader Kim Jong Un.

The White House has characterized ongoing meetings as positive but not commented on recent news reports of US intelligence assessments saying North Korea has been expanding its weapons capabilities. In a Twitter post, Trump said that North Korea has conducted “no Rocket Launches or Nuclear Testing in 8 months.”... “Many good conversations with North Korea-it is going well!” Trump said in his Twitter post, echoing his sentiments following the historic meeting with Kim in Singapore

*Source: <https://www.yenisafak.com/>, 03 July 2018.*

### **Pompeo Says North Korea Denuclearization “Decades Long” Challenge**

Secretary of State Mike Pompeo said getting North Korea to dismantle its nuclear and missile programs is a “decades long challenge,” as President Donald Trump said... he remains confident Kim Jong Un will follow through on his pledges to do so... “Look, this is a decades long challenge,

getting the North Koreans to make a fundamental strategic decision, which is that the nuclear weapons that they possess today frankly present a threat to them and not security,” Pompeo said.

...The top US diplomat said North Korea has “for decades told their own people that without nuclear weapons their country was at risk of being attacked by the west, by America, by some other country.” The job for the US now, he said, is “to get the entire country to understand that they have that strategically wrong...Making that happen will take time, Pompeo said. “To think that this would happen in the course of a handful of hours would have been ludicrous, and I’ve been accused of many things, but not that.”

**North Korea has “for decades told their own people that without nuclear weapons their country was at risk of being attacked by the west, by America, by some other country.” The job for the US now, he said, is “to get the entire country to understand that they have that strategically wrong...Making that happen will take time.**

...Pompeo ... laid out the steps to creating “a peaceful solution,” a painstaking process that will involve “fundamental changes in the relationship between our two countries.” This will involve bringing North Korea “into the community of nations and then we’ll provide security assurances for their country as well,” “If we can figure out how to piece that together, Chairman Kim has made very clear he’s prepared to denuclearize and we’re going to hold him accountable for that commitment,” Pompeo said.

**Satellite imagery reviewed by South Korean intelligence officials showed the movement of laborers and materials at the port of Sinpo, where the submarine appears to be under construction at an indoor facility.**

...North Korea’s “gangster” statement runs counter to Trump administration hopes that Kim is charting a new course for North Korean denuclearization and prompted North Korea experts to warn that Kim was repeating the same tactics his father and grandfather used during previous rounds of similar talks....

Source: Jeremy Diamond, <https://edition.cnn.com/>, 10 July 2018.

### North Korea Submarine Development Signals Increased Nuclear Threat

North Korea is thought to be developing a new submarine capable of launching nuclear-armed ballistic missiles, a senior South Korean lawmaker said, signaling an increased threat to US and allied forces while raising doubts about the regime’s pledges to disarm.

Evidence gathered by South Korea’s military suggests Pyongyang is working on the submarine on its east coast, said Kim Hack-yong, who chaired the legislature’s defense committee until his term ended a few weeks ago. Mr. Kim, who belongs to a conservative opposition party that is skeptical of dialogue with Pyongyang, cited intelligence provided by defense officials. Satellite imagery reviewed by South Korean

**Pyongyang’s ability to mount nuclear weapons on those missiles and what the firing range would potentially be with a newly built submarine remains unanswered—as does the question of where North Korea is getting the technology.**

intelligence officials showed the movement of laborers and materials at the port of Sinpo, where the submarine appears to be under construction at an indoor facility, an aide to Mr. Kim said.

...North Korea’s submarine-launched ballistic missile program was first publicized in 2014. North Korea is believed to have undertaken four to six test launches of its SLBM model known as the KN 11. The test firing of a missile in 2016 that traveled 300 miles signaled that the program was progressing.

Pyongyang’s ability to mount nuclear weapons on those missiles and what the firing range would potentially be with a newly built submarine remains unanswered—as does the question of where North Korea is getting the technology...In recent days, though, satellite images have indicated North Korea is expanding a missile-production facility and erecting a new building at one of its plutonium-producing reactors.

...The latest evidence shows the need to maintain pressure on North Korea and force the regime to negotiate, said Yang Uk, the chief defense analyst at Korea Defense and Security Forum, a Seoul-based private think tank. “It’s too early to say if the North Koreans have defaulted on the Singapore agreement to denuclearize,” he said. “But earlier satellite images have already shown enough evidence proving North Korea has not abandoned its SLBM program.”

Hwang Jin-ha, a retired South Korean Army lieutenant-general and the former chairman of the defense committee at the country’s legislature, said he believed the latest information to be credible. Mr. Hwang, a former lawmaker, belongs to the same party as Kim Hack-yong.

North Korea’s navy operates a fleet of about 70 submarines, alongside 430 surface combat ships,

according to South Korea's Defense Ministry. It also maintains 250 amphibious vessels and 20 minesweepers....

Source: Andrew Jeong, <https://www.reddit.com/>, 06 July 2018, originally published in the Wall Street Journal.

## NUCLEAR NON-PROLIFERATION

### IRAN

#### Iran's President is in Europe to Save the Nuclear Deal ... But He Risks Starting a 'Messy Dispute'

Iranian President Hassan Rouhani is in Europe to meet the leaders of Austria and Switzerland in a bid to save the international nuclear deal. President Donald Trump pulled the US out of the deal in May. European nations Germany, the U.K. and France, who brokered the Iranian nuclear deal with China and Russia in 2015, have said they are committed to the deal. However, trying to do so could cause a "very messy dispute" between the US and Europe, according to one expert.

"The US will increase non-nuclear pressure on Iran, the European banks and businesses will side with Washington while European politicians will try to create or carve cutouts to the international sanctions architecture, and all this makes for a very messy dispute for the US and its allies," Behnam Ben Taleblu, a research fellow at Washington-based think tank, the Foundation for Defense of Democracies, told CNBC's "Squawk Box Asia"...

European nations Germany, the U.K. and France, who brokered the Iranian nuclear deal with China and Russia in 2015, have said they are committed to the deal. However, European businesses and financial institutions could be punished via so-called secondary sanctions if they do business with Iranian individuals or entities once US restrictions snap back in August and then in November.

#### 'A Very Messy Dispute'

..."The JCPOA was never designed to exist without any of its major partners. Therefore the US did not envisage a world where it would be out of the deal and the deal would continue," he said. "Over time, think it might not be 'death by a thousand cuts' to the JCPOA, but the JCPOA will collapse." ...Rouhani's visit to Europe was simply designed to step up pressure on the region for it to save the deal...but he's also looking for more concrete guarantees about creating a sanctions-proof channel, perhaps something around non-dollar denominated transactions for European banks to

be able to wire transactions to Iran as US sanctions are slated to be phased in," he said.

..."European banks and businesses, and select Asian banks and businesses are publicly siding more with Washington than Tehran

because they don't want to face US secondary sanctions which would be in effect starting this summer and increased in the winter."

Banking sanctions will also snap back on November 4, and we will be aggressively enforcing these provisions to lock-up Iran's assets overseas, and deny the Iranian regime access to its hard currency."

Source: <https://www.cnbc.com/>, 03 July 2018.

#### Iran Threatens to Cut Cooperation with Nuclear Body after Trump Move

Iran could reduce its co-operation with the U.N. nuclear watchdog, President Hassan Rouhani told the body's head... after he warned US President Donald Trump of "consequences" of fresh sanctions against Iranian oil sales. In May 2018, Trump pulled out of a multinational deal under... Washington has since told countries they must stop buying Iranian oil from 04 November 2018 or face financial measures.

"Iran's nuclear activities have always been for peaceful purposes, but it is Iran that would decide

on its level of cooperation with the IAEA," Iranian state news agency IRNA quoted Rouhani as saying after meeting IAEA head Yukiya Amano in Vienna.

"The responsibility for the change of Iran's cooperation level with the IAEA falls on those who have created this new situation," he added.

... "The Americans say they want to reduce Iranian oil exports to zero ... It shows they have not thought about its consequences," Rouhani was quoted as saying by IRNA. "If they want to stop Iranian oil exports, we will not allow any oil shipment to pass through the Strait of Hormuz," Ismail Kowsari was quoted as saying by the Young Journalists Club (YJC) website... Rouhani told reporters that if the remaining signatories - the Europeans Britain, France and Germany as well as China and Russia - can guarantee Iran's benefits: "Iran will remain in the nuclear deal without the United States."...

*Source: Reporting by Bozorgmehr Sharafedin; additional reporting Francois Murphy and Kirsti Knolle in Vienna; Editing by Toby Chopra and Robin Pomeroy <https://uk.reuters.com/>, 04 July 2018.*

## **JAPAN**

### **Japan Nuclear Agency Urges Measures to Cut Plutonium Stocks**

Japan's nuclear policy-setting body ...endorsed a call for stricter management of its fuel recycling program to reduce its plutonium stockpile. The annual "nuclear white paper" approved by the Atomic Energy Commission is an apparent response to intensifying pressure from Washington as it pursues denuclearization in North Korea. It says Japan's fuel recycling program should continue, but minimize the amount of plutonium

extracted from spent fuel for reuse in power generation to eventually reduce the stockpile.

**Japan has pledged to not possess plutonium that does not have a planned use, but the promise increasingly sounds empty because of the slow restarts of Japanese power-generating reactors that can burn plutonium amid setbacks from the 2011 Fukushima disaster.**

Japan has pledged to not possess plutonium that does not have a planned use, but the promise increasingly sounds empty because of the slow restarts of Japanese power-generating reactors that can burn plutonium amid setbacks from the 2011

Fukushima disaster.

Though Japanese officials deny any possible misuse of the material and reprocessing technology, the large stockpile of plutonium that can make atomic bombs also raises security concerns as the US wants North Korea to get rid of its nuclear weapons.

The commission is compiling guidelines to better manage and reduce the plutonium stockpile. Measures would include some government oversight in setting a cap on plutonium reprocessing and a study into how to steadily reduce the plutonium processed abroad. Oka declined to cite a numerical target, but he said reducing the stockpile is a "must."

**The commission is compiling guidelines to better manage and reduce the plutonium stockpile. Measures would include some government oversight in setting a cap on plutonium reprocessing and a study into how to steadily reduce the plutonium processed abroad.**

Japan has nearly 47 tons of plutonium — 10 tons at home and the rest in France and Britain, where spent fuel from Japanese nuclear plants has been reprocessed because Japan is not able to reprocess it into plutonium-based MOX fuel at home. The amount is enough to make 6,000 atomic bombs, but at Japan's Rokkasho reprocessing plant denies any risk of proliferation, citing its safeguards and close monitoring by the IAEA.

After years of delay due to technical issues, the Rokkasho plant is in the final stages of safety approvals by the regulators ahead of its planned

launch in 2021. Critics, however, say that starting up the plant only adds to the stockpile. The plant at full capacity can annually produce 8 tons of plutonium, and burning that would require 16-18 reactors — a long shot given the slow pace of restarts and public resistance. Japanese utility operators are also opting to decommission aged reactors rather than making costly safety upgrades to meet the post-Fukushima standards. Another setback for Japan's plutonium balance is a failure of Monju, a plutonium-burning reactor built as the centerpiece of Japan's fuel recycling program. Monju had been suspended after a major accident in 1995 and is now being scrapped.

Source: <https://abcnews.go.com/>, 05 July 2018.

## **NUCLEAR SAFETY**

### **ARGENTINA- BELGIUM**

#### **Argentina, Belgium Extend Nuclear Safety Cooperation**

A memorandum of understanding (MoU) was recently signed between Nucleoeléctrica Argentina SA (NA-SA) and Belgium's Nuclear Research Centre (SCK-CEN) aimed at extending cooperation on nuclear safety between the two organisations that has existed for more than 15 years.

The MoU was signed in Buenos Aires on 26 June 2018 by Derrick Gosselin, Chairman of SCK-CEN's Board of Governors, Hamid Ait Abderrahim, Deputy Director-General of SCK-CEN, and Rubén Omar Semmoloni, Director-General of NA-SA...The MoU defines the framework for cooperation on issues related to inspection programmes for the steel and internal components of reactor pressure vessels; aging and degradation of materials; long-term operation of nuclear power plants; waste management and disposal; and training and

education.

...Semmoloni noted, "The work carried out by SCK-CEN in our facilities has been very fruitful since it has allowed us to carry out the Atucha I Life Extension Programme and to have an updated Reactor Vessel Inspection Programme at Atucha II that will allow us

to ensure the safe long-term operation of our plants."....

Source: *World Nuclear News*, 06 July 2018.

### **BANGLADESH**

#### **Rooppur Power Plant: No Worries Over Safety**

Prime Minister Sheikh Hasina ... assured the public that the Rooppur Nuclear Power Plant was being constructed with full security measure taken, adding that the design of the plant has been developed in a way as to not succumb to any accident – nuclear or man-made. "Atomic energy regulatory bodies from Russia and India are training our people and scientists, and this will continue....there's nothing to be afraid of," she said at a programme marking the first concrete pouring into the second unit of the country's first nuclear power plant.

The construction of the second unit was jointly inaugurated by the PM and Deputy PM of Russian Federation Yury Ivanovich Borisov. Hasina further said that the government has given utmost importance to the security of the nuclear power plant, adding that there will be a separate security unit taking support from the army, police and other law enforcement agencies.

... the government is strictly following the(IAE safety standards and other relevant guidelines as well as internationally approved practices in building Rooppur. "The plant is being made with G3+ Russian reactor which contains the latest

**The government has given utmost importance to the security of the nuclear power plant, adding that there will be a separate security unit taking support from the army, police and other law enforcement agencies.**

**The plant is being made with G3+ Russian reactor which contains the latest technologies for safety measures and radiation control system.**

technologies for safety measures and radiation control system. The highest measures are being taken to avoid any sort of risk for the people," she said, adding that Russia will take the responsibility for the nuclear waste management.

...With IAEA overlooking issues relating to nuclear energy, Hasina said they sought its cooperation commissioning the Rooppur Nuclear Power Plant at that time. "A time-bound plan had also been worked out with the help of IAEA. But before completion of the entire process, our 1996-2001 tenure ended," she said.

The prime minister said the BNP-Jamaat government, after coming to power in 2001, stopped implementation of many people-centric projects, including the Rooppur plant. "After assuming office again in 2009, we've restarted the project and the Russian Federation has come forward to help implement it...

The construction of the first reactor unit began on 30 November 2017. Currently, the work on construction of the walls, reinforcement of the reactor building, and the foundation of slab of the auxiliary reactor building are being done, while soil stabilisation work for the evaporative cooling tower and others have already commenced. Two units — 1,200 MWe VVER each — are to be built at Rooppur under the Russian design giving priority to the highest safety measures. The VVER-1,200 reactor design has already been implemented at the Novovoronezh Nuclear Power Plant II in Russia.

Unit-1 is scheduled to be commissioned in 2023, while the commissioning of the second unit is slated for 2024 to produce 2,400 megawatts of electricity from the two units. The PM hoped that the nuke plant will play an important role in Bangladesh's journey towards becoming a middle-income country...

Source: *The Daily Star*, 15 July 2018.

## NUCLEAR WASTE MANAGEMENT

### CANADA

#### Pickering's Nuclear Waste Problem Just Got Bigger

Some 740,000 fuel bundles containing radioactive isotopes are sitting at Pickering, the legacy of close to 50 years of nuclear operations, and there is nowhere for the waste to go. Greenpeace's senior energy analyst Shawn-Patrick Stensil likens OPG's application to extend operations at Pickering nuclear station to a request "to expose millions of people to the possibility of a nuclear accident.".... It's a lesson Ontario's nuclear industry would do well to learn.

The Canadian Nuclear Safety Commission (CNSC) wrapped up to consider a 10-year extension of operations of the aging six-reactor Pickering Nuclear Generating Station.

The Ontario Clean Air Alliance, Canadian Environmental Law Association and Greenpeace all urged the CNSC to reject Ontario Power Generation's request to extend the station's operating licence to 2024. The plant is scheduled to close 31 August 2018.

...But while concerns over safety and emergency preparedness dominated the submissions of critics, OPG's plans for nuclear-waste fuel bundles already being stored at the Pickering site has received comparatively little attention...Placed end to end, the half-metre long bundles would stretch from Kingston to St. Catharines. More than half of these are sitting in open water pools. The others are in conventional commercial storage buildings beside the Lake Ontario facility.

This is not some benign waste product. The bundles contain materials that can release radioactive isotopes that can penetrate the human body. They also contain an enormous amount of plutonium, enough to construct more than 11,000 nuclear warheads. But the biggest problem is that

**This is not some benign waste product. The bundles contain materials that can release radioactive isotopes that can penetrate the human body. They also contain an enormous amount of plutonium, enough to construct more than 11,000 nuclear warheads. But the biggest problem is that there is absolutely nowhere for this waste to go.**

there is absolutely nowhere for this waste to go.

Half a century after the start of nuclear power operations in Canada, the Nuclear Waste Management Organization is still on the hunt for a "willing host" community to accept the thousands of tonnes of spent fuel that will remain highly radioactive for thousands of years... Furious opposition to OPG's plan to bury radioactive waste near the Bruce Nuclear Generating Station on Lake Huron has been mounted by people on both sides of the border. This means there is little chance the waste currently being stored at Pickering is going anywhere in the next 60 to 100 years.

**This means there is little chance the waste currently being stored at Pickering is going anywhere in the next 60 to 100 years.**

While OPG is planning to expand its conventional storage facilities so that Pickering can continue to operate well beyond 2024, it has no plans to build concrete-reinforced, attack resistant vaults aboveground, as environmentalists are recommending, to protect Pickering's waste. Those, like Premier Ford, who support keeping Pickering running need to explain how they plan to safeguard the thousands of tonnes of potentially deadly waste already stored at the site and why it is a good idea to continue adding more.

*Source: Angela Bischoff is director of the Ontario Clean Air Alliance, <https://nowtoronto.com/>, 10 July 2018.*



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P-284

Arjan Path, Subroto Park,  
New Delhi - 110010

Tel.: +91 - 11 - 25699131/32

Fax: +91 - 11 - 25682533

Email: capsnetdroff@gmail.com

Website: [www.capsindia.org](http://www.capsindia.org)

**Edited by: Director General, CAPS**

**Editorial Team: Dr. Sitakanta Mishra, Hina Pandey, Anushree Dutta, Dr. Poonam Mann, Wg Cmdr Kaura, Sreoshi Sinha**

**Composed by: CAPS**

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