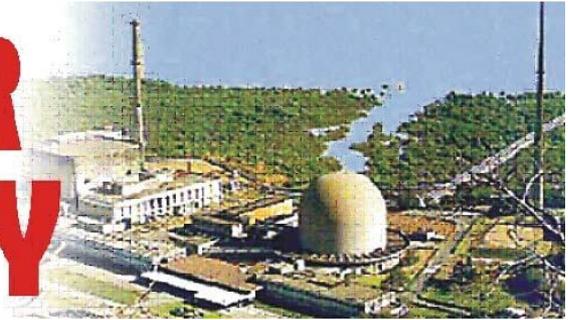


NUCLEAR SECURITY



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

Vol 12, No. 21, 01 SEP. 2018

OPINION – Manjtreet Sethi

Nuclear Security: The Focus Must Not Flag

The last few weeks have witnessed the release of at least three reports (1, 2, 3) on nuclear security. This is a welcome development since the import of this subject has in no way diminished since the end of the Nuclear Security Summit (NSS) process in 2016, and the urgency of the challenge must be kept alive. In fact, nuclear security is a journey and not a destination. It is hence critical that every now and then the spotlight is placed on the issue to check whether the international community is on the right track.

In theory, it could well be argued that a considerable distance has been travelled since the first NSS in 2010. There is indeed in place today a mosaic of institutional mechanisms, international treaties, cooperation arrangements, national efforts and even a couple of dozens of Centres of Excellence on nuclear security across the world. The NSS process did have an impact on awareness levels, and countries came to the Summits armed with reports on their actions and with new commitments contained in a gift basket. Membership of treaties accordingly went up and national legislations and regulations were tweaked to meet international benchmarks. As a follow up to the NSS process, five action plans on

The NSS process did have an impact on awareness levels, and countries came to the Summits armed with reports on their actions and with new commitments contained in a gift basket. Membership of treaties accordingly went up and national legislations and regulations were tweaked to meet international benchmarks.

CONTENTS

- ☞ OPINION
- ☞ NUCLEAR STRATEGY
- ☞ BALLISTIC MISSILE DEFENCE
- ☞ NUCLEAR ENERGY
- ☞ NUCLEAR COOPERATION
- ☞ URANIUM PRODUCTION
- ☞ NUCLEAR PROLIFERATION
- ☞ NUCLEAR NON-PROLIFERATION
- ☞ NUCLEAR SECURITY
- ☞ NUCLEAR WASTE MANAGEMENT

nuclear security today exist at the UN, the IAEA, the Global Partnership against spread of WMD, Interpol, and the Global Initiative on Countering Nuclear Terrorism (GICNT). Yet, challenges remain, and these must be well understood to further nuclear security to the next level.

A preliminary challenge comes from the lack of good relations amongst big powers. If they are not on the same page in their assessment of the threat, it can prove to be a huge stumbling block when moving on issues that have global dimensions. Different countries obviously have different priorities. It is the sense of consensus amongst the big stakeholders in the international

community that can bring about a sense of urgency on issues to make them a priority for all. This happened, for instance, in the 1970s in the case of the conclusion of the NPT, and then in the early 1990s regarding the extension of the NPT. It happened again in 2010-2014 when President Obama pushed for nuclear security as a common concern. But once Crimea happened and Russia became the 'enemy', collaboration on the issue stopped. President Putin refused to participate in the 2016 NSS claiming that for Russia the issue of nuclear security was over.

As of today, despite the Helsinki Summit, the US-Russia relationship does not look good. Neither is the US-China track offering any hope of consensus on matters of global concern. On the other hand, the sense of salience attached to nuclear weapons is seriously up, making countries clam up on their nuclear weapons ambitions. So, if nuclear material in military holdings was to be the next thing on the agenda of nuclear security, it is unlikely to get anywhere for a while. And, if countries with the biggest nuclear stockpiles sound more belligerent and reticent on sharing nuclear information, one can hardly expect smaller players to offer transparency. Nuclear security, therefore, looks less a matter of priority for now.

The second challenge is that the lack of focus from big stakeholders leads to lack of uniformity in recognising the threat and rigour of implementation amongst others. While those that recognise it as a national threat remain focused on it, others may become more lax and end up as weak links in the chain. So, a country that deals in no nuclear material may refuse to enter treaties or accept burdensome national

If nuclear material in military holdings was to be the next thing on the agenda of nuclear security, it is unlikely to get anywhere for a while. And, if countries with the biggest nuclear stockpiles sound more belligerent and reticent on sharing nuclear information, one can hardly expect smaller players to offer transparency. Nuclear security, therefore, looks less a matter of priority for now.

Most nuclear security measures are voluntary, and there is no instrument under which punishment for violation is possible. Given that countries that have indulged in proliferation have gone unpunished, the risk of similar behaviour not eliciting any action might not prove to be enough of a deterrent in case nuclear security in some country is compromised.

regulations when there is no international spotlight on the subject owing to no major power pressure. It is no secret that nuclear/radiological material accounting and reporting are perceived as burdensome by countries that do not perceive this threat as of a high concern. Since it is not considered a priority, the material and human resources available are never enough to meet the requirements of the reports that need to be submitted to some international instruments such as the UNSCR 1540 Committee.

The third challenge comes from the need to balance national sovereignty with international responsibility. Since both dimensions impinge on each other on a subject like this, too much international oversight could be perceived as overly intrusive, just as much as a lack of international commitment could make countries overly lax and make them de-prioritise actions needed to enhance not just their own but everyone else's nuclear security. This balancing act between national and international, however, is not easy.

The fourth challenge remains the lack of punishment for non-compliance. Most nuclear security measures are voluntary, and there is no instrument under which punishment for violation is possible. Given that countries that have indulged in proliferation have gone unpunished, the risk of similar behaviour not eliciting any action might not prove to be enough of a deterrent in case nuclear security in some country is compromised.

The fifth challenge arises from the fact that after Fukushima, which dissipated the sense of nuclear renaissance, the nuclear market is once again a

buyer's market. So, sellers are ready to sweeten deals to sell nuclear reactors. Given that the predominant sellers in the nuclear market today are Russia and China who are hardly known for high standards themselves, the sale of reactors to countries that might have less than strong regulatory environments and unstable security situations could create risks for nuclear security. A lack of insistence on high level security anywhere could lead to a disaster somewhere, but its impact would be more than just national.

To turn the situation around, nuclear security must be perceived as a common goal by the major stakeholders. Hence, the focus at levels where it continues to receive the highest political attention is important. Secondly, sharing of a few kinds of material or information could be most helpful. For instance, sharing technologies for detection of nuclear material such as scanners at ports, decontamination techniques or materials, and medical counter-measures could enable their manufacturing at lower costs and thus incentivise countries to have them installed. Similarly, sharing advances in nuclear forensics could help prevent nuclear terrorism through deterrence by threat of punishment. In another example, sharing best practices and experiences in enforcement e.g. training of physical security guards, on the making of personnel reliability programmes, tools for data mining and storage for easy retrieval, etc. could help countries learn from one another. India's nuclear security centre under the GCNEP could take up some of these issues.

Lastly, events and efforts will be periodically needed to keep the momentum going on nuclear security. Some such opportunities are bound to come up during the review conferences of the CPPNM, which is due in 2021, IAEA ministerial conference, etc. More will have to be created. In fact, it is essential to understand the paradox that

confronts the world. The absence of an untoward incident over a period of time could lessen the threat perception and interest in nuclear security. But that laxity may lead to an incident. So, nuclear security will have to be a journey that is embarked upon till such time as nuclear material and terrorism continue to exist.

It will be a long journey.

Source: <https://www.eurasiareview.com>, 22 August 2018.

OPINION – Firstpost

How the Former PM Cemented India's Position as a Nuclear Power with Pokhran-II

"The answer to an atom bomb is an atom bomb, nothing else." Rajya Sabha MP and Bharatiya Jana Sangh (later BJP) leader Atal Bihari Vajpayee said the aforementioned words in the Parliament in 1964 after the People's Republic of China detonated a 16-kiloton bomb, its first nuclear test, on 16 October, 1964, to become the fifth nation in the world to join the exclusive nuclear-armed State club.

The late leader's words were not new at the time, for the BJP had profusely expressed its support to making India a nuclear-armed nation as part of its "Hindu nationalist" agenda. The statement was met with thunderous approbation and was crucial in a demoralised time, where India had suffered a humiliating defeat to China two years earlier, in the 1962 war, under Jawaharlal Nehru's leadership.

Thirty-four years later, Vajpayee's words took concrete shape and shook the world when India conducted nuclear tests and emerged as a nuclear power with Operation Shakti in Pokhran in 1998. The Jana Sangh and Vajpayee's commitment to nuclear research was so colossal that in 1969, economist and party member Subramanian Swamy published a comprehensive study on Indian nuclear strategy titled '*Systems Analysis of Strategic*

Sharing best practices and experiences in enforcement e.g. training of physical security guards, on the making of personnel reliability programmes, tools for data mining and storage for easy retrieval, etc. could help countries learn from one another. India's nuclear security centre under the GCNEP could take up some of these issues.

Defence Needs in the *EPW*. In it, Swamy argued that while India could be faced with a nuclear threat from China, other superpowers or nuclear nations aimed to keep India from acquiring such arsenal as it would diminish their power. "We may be faced with a nuclear threat from China and be without help because a direct confrontation among the superpowers which have nuclear capability is impossible and has been made remote by mutual agreements among them. Also, it is in the superpowers' interest to keep other countries like India from acquiring nuclear defence capability as it would reduce their own manoeuvrability and power," he wrote...

When erstwhile Prime Minister Indira Gandhi conducted the Pokhran-I test in 1974 on Buddha Purnima, she called it a "peaceful nuclear explosion" to pacify the western powers and avoid the threat of sanctions from them (it didn't work). For more than two decades after that, subsequent PMs such as PV Narasimha Rao attempted to revive nuclear research, only to be thwarted by American surveillance satellites and threat of sanctions. In 1995, Rao approved a nuclear test, but had to abort it after the CIA detected suspicious movement at Pokhran. A subsequent *New York Times* report on 15 December 1995, on the same sent alarm bells ringing through the power corridors of Washington, compelling US Ambassador to New Delhi Frank Wisner to return to New Delhi with photographs of the hole being dug at the test site and caveats of impending sanctions if India went ahead with it. Just before elections in 1996, Rao again tried to conduct nuclear tests, but a courtesy call from CIA officials

put an end to that as well.

Vajpayee's First Steps towards Nuclear Testing:

That year in May, Vajpayee came to power as the head of a rocky coalition government and took the first steps towards nuclear testing. He called his private secretary Shakti Sinha and asked him to locate chief scientific adviser Dr APJ Abdul Kalam, who was also the secretary of the DRDO. However, before the preparations could take shape, Vajpayee's government fell within a mere 13 days. This was also before the CTBT was ratified by 149 countries at the UN. Subsequent governments headed by HD Deve Gowda and IK Gujral did not bother with the nuclear programme, and the plans were put in cold storage.

Before Vajpayee and Narasimha Rao, former PM Rajiv Gandhi in 1998 had authorised PK Iyengar, chairman of the Atomic Energy Commission, and DRDO chief VS Arunachalam, to start producing a limited number of weapons. This was after Gandhi was reportedly certain that Pakistan possessed more than one nuclear weapon, while India had none.... BARC director Anil Kakodar, who was involved in the 1974 and 1998 nuclear tests, later told *The Indian Express*, that one of the reasons conducting the nuclear tests were important for India was that post-1974, China had begun sharing technology and materials with Pakistan. "If India had to carry on with its business, including the business of developing itself, it could not possibly be doing under the threat of two nuclear adversaries. We had to have a deterrent."...

Swamy argued that while India could be faced with a nuclear threat from China, other superpowers or nuclear nations aimed to keep India from acquiring such arsenal as it would diminish their power. "We may be faced with a nuclear threat from China and be without help because a direct confrontation among the superpowers which have nuclear capability is impossible and has been made remote by mutual agreements among them."

That one of the reasons conducting the nuclear tests were important for India was that post-1974, China had begun sharing technology and materials with Pakistan. "If India had to carry on with its business, including the business of developing itself, it could not possibly be doing under the threat of two nuclear adversaries. We had to have a deterrent."

When the BJP government came back to power in March 1998, with Vajpayee at its helm again, the party veteran and PM began laying the ground for the nuclear tests. On 8 April, he summoned DAE chief R Chidambaram and DRDO chief APJ Abdul Kalam to give them the thumbs-up for the tests.... Principal Secretary Brajesh Mishra and Vajpayee's closest aide, was responsible for conducting the entire operation from the PM's Office. The entire operation was conducted in such high secrecy that nobody except the aforementioned and home minister LK Advani knew about it. Defence minister George Fernandes was told about the tests on 9 May. The next day, the three service chiefs and foreign secretary were informed. On the morning of 11 May, members of the Cabinet Committee on Security were formally informed about it.

Pokhran was host to an unusual set of guests in the balmy month of May 1998. Along with Kalam and Chidambaram, director of test sites preparation Dr K Santhanam and a team of nuclear scientists and engineers moved at night to avoid the prying eyes of US spy satellites so that drilling for a deep tunnel could be done when they were turned the other way.

May 1998: Pokhran was host to an unusual set of guests in the balmy month of May 1998. Along with Kalam and Chidambaram, director of test sites preparation Dr K Santhanam and a team of nuclear scientists and engineers moved at night to avoid the prying eyes of US spy satellites so that drilling for a deep tunnel could be done when they were turned the other way.... They wore ill-fitting army uniforms and assumed false identities to disguise themselves from prying villagers. The scientists and army worked at night to avoid detection and visited Pokhran separately. Bomb shafts were dug under camouflage and the dugout sand placed in dune shapes to avoid detection. The nuclear devices were also flown and driven in from different places....

11 May 1998: D-day:-After the wind died down and under cloudy skies, at 3.45 pm, three devices — thermonuclear device (Shakti I), the fission device (Shakti II), and a sub-kiloton device (Shakti III) — were detonated on 11 May, which also happened to be Buddha Purnima. Thanks to the weather condition, US satellites could detect nothing. Later in the day, Vajpayee, the weeks-

old government, announced the news to the world. "Measurements have confirmed that there was no release of radioactivity into the atmosphere. These were contained explosions like in the experiment conducted in May 1974. I warmly congratulate the scientists and engineers who have carried out the successful tests. Thank you very much indeed," he said, concluding his statement. Principal Secretary Mishra later said "that India has a proven capability for a weaponised nuclear programme." On the other side of the world, US deputy secretary of state, Strobe Talbott found out about India's entry into the nuclear weapons club.... Two days later, on 13 May, two more sub-kiloton devices, Shakti IV and V, were detonated.

International Outrage:-The day after Vajpayee's press conference, *The New York Times* ran a story with this headline: "India sets 3

nuclear blasts, defying a worldwide ban; tests bring a sharp outcry". The Clinton Administration condemned the tests and said it was "deeply disappointed" and subsequently slapped sanctions against India. Britain conveyed its "dismay" and Germany called it "a slap in the face" for the countries that ratified CTBT and the then-UN secretary general Kofi Annan issued a statement expressing his "deep regret".

Back home, BJP bathed in triumphant glory, while the Opposition sat stunned. BJP general secretary M. Venkaiah Naidu said all those who did not hail the tests were "unpatriotic" Congress President Sonia Gandhi issued a statement 10 days later and said that real strength lay in restraint and "not in the display of *shakti*". The Left slammed the government and accused them of "trying to equate the bomb with patriotism and whip up a jingoistic fervour".

Addressing the Lok Sabha in the Parliament later on, Vajpayee defended his actions and asked why shouldn't the country be self-sufficient in matters of national security. "I was in the House in 1974,

when under Indira Gandhi's leadership, nuclear tests were conducted. We had welcomed it, despite being the Opposition, because it was done for national security. What danger was there at that time? Should we begin to prepare ourselves only when we are posed with danger? If we are well-prepared, any danger in future can be taken care of," he said.... He clarified India's position on use of nuclear weapons: "No-first use. We also said, those who don't have weapons, we will not use it against them." "Pokhran-II was not done to boast our valour. Our policy is that our country should have a minimum and credible deterrent so that no external power will ever dare threaten us," he said, adding that atomic weapons could be used for a country's safety and security too.

Following the Pokhran-II tests, in a letter to US president Bill Clinton, Vajpayee expressed his fears about having nuclear-armed neighbour and the rationale behind conducting the nuclear tests. Without directly referring to China, Vajpayee wrote, "We have an overt nuclear weapon state on our borders, a state which committed armed aggression against India in 1962. Although our relations with that country have improved in the last decade or so, an atmosphere of distrust persists mainly due to the unresolved border problem." He further explained that China attempted to turn its other neighbour, Pakistan, into a covert nuclear weapons state. Vajpayee also clarified that tests were limited in number and posed no danger to any country with no ill-feelings towards India. "We value our friendship and cooperation with your country and you personally. We hope that you will show understanding of our concern for India's security. I assure you that India will continue to work with your country in a multilateral or bilateral framework to promote the cause of nuclear disarmament," the letter read.

Source: <https://www.firstpost.com>, 17 August 2018.

OPINION – Chuck Freilich

In the Middle East the Russians aren't Coming: They are Back

Four decades after the US largely succeeded in side-lining the Soviet Union in the Middle East and becoming the leading regional, Russia is resurrecting its long-lost standing. The process of partial American disengagement from the region that began under President Obama has further increased under President Trump. Indeed, if things continue as is, Russia may soon supplant the US. Russia's growing influence is manifest across the region, from

Morocco to Iran. This remarkable turnabout, part of Vladimir Putin's overarching strategy of restoring Russia's standing as a great power, has been the result of deft diplomacy combined with a willingness to sell arms and nuclear power reactors to all askers.

While international attention has been focused on the Iranian nuclear program, Russia has been playing an

increasingly important role in two other dangerous trends underway in the region: a massive conventional arms race—\$1.3 trillion of arms bought by the Gulf states alone between 2000 and 2014—and a dramatic push to procure nuclear power reactors. All of the reactor programs reflect legitimate energy needs, but "civil" nuclear programs in the Middle East have a nasty tendency to morph into military ones. U.S. allies in the region today have become hesitant to continue placing all of their strategic faith and security in American hands. While they uniformly welcome President Trump's more hard-line approach, the scars of American weakness during the Obama years, as they perceive it, have yet to heal. Moreover, Trump's unique character has engendered ongoing doubts regarding American

Russia has been playing an increasingly important role in two other dangerous trends underway in the region: a massive conventional arms race—\$1.3 trillion of arms bought by the Gulf states alone between 2000 and 2014—and a dramatic push to procure nuclear power reactors. All of the reactor programs reflect legitimate energy needs, but "civil" nuclear programs in the Middle East have a nasty tendency to morph into military ones.

trustworthiness. For the meantime, U.S. allies are hedging their bets.

Egypt's anger over what it viewed as insufficient American support for the Mubarak regime, and subsequent sanctions on arms sales, led to a significant improvement in its relations with Russia. A deal for four Russian nuclear power reactors was concluded in 2017. Military ties have been restored, including the sale of some dozens of advanced fighters, attack helicopters and S-300 missiles, along with new joint military exercises. Egypt has been the linchpin of American policy in the region ever since it evicted the Soviets in the early 1970s. In so doing, it created the basis for the three mutually reinforcing pillars of U.S. Middle East policy to this day: the establishment of a moderate, pro-American Arab camp with Egypt and Saudi Arabia at its centre; countering regional rogues such as Iraq, Iran and Libya with the moderates' support; and the promotion of Arab-Israeli peace—again, with moderate support. An Egyptian-Russian rapprochement constitutes a severe blow to American standing.

For decades, an unwritten deal has governed US-Saudi relations; security for an assured supply of oil. In 1991, the US even went to war in defense of Saudi Arabia. Today, however, the Saudis are skittish. In 2017, King Salman bin Abdulaziz Al Saud conducted the first ever visit of a Saudi monarch to Russia. A deal was signed for highly advanced S-400 and anti-tank missiles. A nuclear cooperation agreement was also signed, and Russia hopes to provide at least two of the planned sixteen Saudi reactors. Russia and Saudi Arabia—who together make up approximately 20 percent of international oil production—have also coordinated policy to raise the global price. Russia's minimalistic

military intervention in Syria, with just two fighter squadrons, has been remarkably successful, saving the Assad regime at virtually no cost to Russia, which left the bloody ground fighting to Iran and Hezbollah. Obama's self-energating prognosis that Syria would become Russia's Vietnam has been proven baseless. Russia has become the primary player in Syria today, ensuring its long-term presence there with a Syrian commitment to grant it air and naval bases—from which it projects region-wide power—for forty-nine more years. A country of little importance in and of itself to the US, Syria

has become the focal point of the most critical regional issues, including the Sunni-Shiite confrontation, the war against ISIS, Iranian expansionism, and a possible Iranian-Israeli conflict. Russia's position in Syria provides it with influence over all.

The U.S. withdrawal from the Iran nuclear deal has driven Tehran even closer

to Russia, its long-time ally. Iran is counting on Russia to help defeat the American sanctions regime and prevent any possibility of military action against it. Russia has already supplied Iran with S-300 missiles, and sales of fighter aircraft, tanks and artillery once Security Council mandated limitations expire have been mooted. Russia provided Iran with its sole nuclear reactor, and may sell a few more.

Turkey, for decades a virulently anti-Russian NATO ally, has been cozying up to Moscow and appears to be going ahead with the purchase of S-400 missiles over the vehement protests of its NATO allies. Morocco, Bahrain and Qatar are also interested in the S-400. Russia signed a large arms deal with the UAE and is exploring the possibility of gaining access to naval bases in Libya. A nuclear cooperation agreement was signed with Tunisia. Russia has also offered Lebanon a large arms deal and is interested in

Russia and Saudi Arabia—who together make up approximately 20 percent of international oil production—have also coordinated policy to raise the global price. Russia's minimalistic military intervention in Syria, with just two fighter squadrons, has been remarkably successful, saving the Assad regime at virtually no cost to Russia, which left the bloody ground fighting to Iran and Hezbollah.

air and naval bases there too. Russia has cooperated overtly with Hezbollah in the fighting in Syria, and Hezbollah itself now has Russian arms, presumably supplied indirectly by Syria and/or Iran “without Russian knowledge.”

Concomitantly, Russia has also succeeded in developing an increasingly close relationship with Israel. U.S. disengagement from Syria and its withdrawal from the nuclear deal have had the practical effect of making Russia a critical player for Israel. The prospects of an Israeli conflict with Iran/Hezbollah in Syria, or with Iran over its nuclear program, hinge significantly on the role played by Russia. Premier Benjamin Netanyahu has now visited Putin in Moscow ten times in the last two years alone. The diplomatic world, much like nature, abhors a vacuum, and Russia has rushed to fill the void left by the US. A restoration of American primacy is possible, and would be welcomed by allies, but would require three important changes in U.S. policy.

First, that the US finally develops a strategy for Syria. Certainly a hard call, but as Russia has proven, the US could be playing a far more effective role without risking major involvement. Second, the adoption of a coherent U.S. policy towards Iran. Not just a capricious withdrawal from the nuclear agreement, followed by the enunciation of welcome but unrealistic objectives, without preparing any policy options other than sanctions, or anything that appears like a plan B—or even a plan A. Finally, maintaining the close alliance with Israel, but also either pursuing an all-out attempt to reach

The diplomatic world, much like nature, abhors a vacuum, and Russia has rushed to fill the void left by the US. A restoration of American primacy is possible, and would be welcomed by allies, but would require three important changes in U.S. policy.

a breakthrough with the Palestinians, or a decision to make do with conflict management in a way that does not further inflame matters. Unfortunately, the prospects of any of this happening under Trump are low. In the Middle East, the Russians are back—and likely to stay.

Source: <https://nationalinterest.org>, 13 August 2018.

OPINION – Maysam Behravesh

Why Trump’s ‘Arab NATO’ Plan won’t Curb Iran

The first round of what U.S. President Trump called “the most biting sanctions ever imposed” against Tehran went into effect on August 7. “Anyone doing business with Iran will NOT be doing business with the US,” Trump continue.... An even more damaging second round of U.S. sanctions against the Islamic Republic, reinstated after Washington pulled out of the 2015 nuclear deal between Iran and world powers, is expected to take effect in November. Yet economic pressure is not the only tool the US and its allies are using to counter Iran. In recent months, the Trump administration has been quietly working to forge a new security alliance, with the six members of the GCC – Saudi Arabia, the UAE, Bahrain, Kuwait, Qatar, and Oman – as well as Egypt and Jordan, to counter what it views as aggressive Iranian expansion in the region.

The Trump administration has been quietly working to forge a new security alliance, with the six members of the GCC – Saudi Arabia, the UAE, Bahrain, Kuwait, Qatar, and Oman – as well as Egypt and Jordan, to counter what it views as aggressive Iranian expansion in the region. Tentatively known as the Middle East Strategic Alliance (MESA) – but already nicknamed “Arab NATO” by the international press.

Tentatively known as the Middle East Strategic Alliance (MESA) – but already nicknamed “Arab NATO” by the international press — U.S. and Arab officials say the coalition is being planned in an effort to expand cooperation on counterterrorism, missile defense and military training, partly to address the security challenges posed by Iran and its proxies.

The basic concept of an Arab NATO, however, is structurally flawed, and stands little chance of success. Unlike the members of the NATO, which was established on the basis of shared interests and a more or less common “strategic culture,” in the face of a shared Soviet threat, the Sunni-led countries that the Trump administration expects to join the new alliance disagree on fundamental matters, including the crucial question of how best to conduct relations with Iran. While Saudi Arabia and the UAE view Tehran as their greatest enemy and are fighting a protracted war against Iran-aligned Houthis in Yemen, Kuwait and, especially, Oman have historically enjoyed peace, and periods of close cooperation, with Iran. While Muscat facilitated the secret negotiations between Iranian and American officials that ultimately produced the historic nuclear deal, Saudi Arabia, the UAE and Bahrain have consistently opposed the JCPOA, as the accord is formally known.

An even greater obstacle to the formation and effective functioning of an Arab NATO is the schism pitting the UAE, Saudi Arabia and Bahrain against Qatar. That crisis began in June 2017, when Riyadh, Abu Dhabi and Manama decided to ostracize their tiny neighbour, cutting trade and diplomatic ties with Doha over its alleged support for terrorism and relationship with Iran. Qatar, notably, is home to the largest U.S. air base in the region, while Saudi Arabia is the world’s largest buyer of American weaponry; the crisis, therefore, put the US in an awkward position vis-à-vis two of its most important Middle Eastern allies. Officially floated for the first time by Trump during his 2017 trip to Riyadh, the idea of forging an Arab NATO seems to be an attempt at what has come to be known, in international relations, as “buck-passing.”

In other words, by pursuing an “America First” foreign policy the Trump administration is trying to shift the responsibility for taking on Iran to its Arab allies. The administration appears to be intent on using the plan as a catalyst for profitable arms sales to those countries; hours after the U.S. president landed in Riyadh last year,

he and Saudi King Salman signed a number of agreements, including an arms deal worth about \$110 billion, effective immediately, plus another \$350 billion over the coming decade. But buck-passing is exactly what America’s Arab allies want, too, when it comes to countering Tehran. Unwilling or unable to engage with Iran directly, its Sunni rivals hope to persuade the US and even Israel to do the heavy lifting for them. As one analyst pointedly put it, Saudi Arabia seeks to fight Iran “to the last American,” by luring it into a war with the Islamic Republic. This fundamental clash of perceptions and expectations at the heart of the concept does not bode well for the successful launch of an Arab NATO – especially given the irony that these plans are being mooted at the

same time Trump has threatened to break with the original NATO if other allies don’t increase their military spending.

Lastly, is it far from clear how such an organization would go about confronting Iran in practice. A successful alliance might manage to prevent Tehran

from establishing a long-term military presence in Syria as well as defeat Shi’ite Houthis in Yemen and restore the ousted Saudi-allied President Abdrabbuh Mansour Hadi to power or, more concretely, to set up a missile defense shield covering the wider Middle East. But unless internal rifts between potential members are resolved and a political consensus on burden-sharing is achieved, the Trump administration’s plans for passing the buck to an Arab NATO are unlikely to become reality.

Source: <https://www.reuters.com>, 14 August 2018.

OPINION – Stasa Salacanian

Arab States and Nuclear Energy: Necessity or Geopolitical Status Symbol?

Despite political and security issues in the region and potential environmental hazards, many Arab states are rapidly moving towards nuclear energy expansion. The most explosive region in the world is going nuclear. But, tensed geopolitical

A successful alliance might manage to prevent Tehran from establishing a long-term military presence in Syria as well as defeat Shi’ite Houthis in Yemen and restore the ousted Saudi-allied President Abdrabbuh Mansour Hadi to power or, more concretely, to set up a missile defense shield covering the wider Middle East.

environment and presence of non-state actors such as the Islamic State group [IS] al-Qaeda, and other extremist organisations make the nuclear power development controversial. Moreover, the associated costs, the rise of more affordable renewable alternatives, and proliferation concerns could narrow the space for the widespread development of nuclear energy.

Despite political and security issues in the region and potential environmental hazards, which have downgraded the image of nuclear energy in the world, many Arab states are rapidly moving towards nuclear energy expansion. Most nuclear programmes in the Middle East do appear to be connected to regional security competition so the turn to nuclear power by Saudi Arabia, and several other countries in the Middle East, raises the risk of a nuclear arms race. Saudi leaders have said repeatedly, for example, that “whatever Iran has, we will have too.”

Growing Energy Needs and Matter of Prestige: The rapid growth of electricity and water needs and depletion of oil and natural gas reserves have created a need to develop nuclear energy potentials and Middle Eastern governments are using it as the main argument in their efforts to diversify their energy mix, which still heavily relies on oil and gas.

The Economist Intelligence Unit, for instance, forecasts a seven percent increase in the demand for energy in the region over the next 10 years. The estimates of German conglomerate Siemens offer even greater cause for concern as it predicts that power demand in the Middle East will increase by more than three percent annually through 2035 and that the region will need to add more than 275 gigawatts of capacity – more than double

what is now installed. But advances in other energy technologies and the controversies surrounding Iran’s nuclear programme are complicating the regional pursuit of nuclear power.

Most nuclear programmes in the Middle East do appear to be connected to regional security competition so the turn to nuclear power by Saudi Arabia, and several other countries in the Middle East, raises the risk of a nuclear arms race. Saudi leaders have said repeatedly, for example, that “whatever Iran has, we will have too.”

High Costs: Despite obvious gains in regard to achieving greater security of supply of electricity and water, it is clear that nuclear development of Middle East will pose a heavy financial burden for the

countries involved. Carol Nakhle’s study on Nuclear Energy’s future in the Middle East and North Africa points out that given the already highly subsidised economies in the region, there are concerns about Middle Eastern governments making such massive investments in nuclear power. It requires large, long-term investments in complex technologies and relies heavily on government support, and these projects will again require massive government subsidies. This makes purely commercial financing difficult to obtain.

Finally, operating such complex facilities will require hiring highly qualified (and mostly foreign) personnel. This may pose a problem for the poorer countries, although it may be the case even for rich but troubled GCC economies. Saudi Arabia’s plan, for example, to build 16 nuclear reactors which will produce 17GWe, or 15 percent of its power needs, by 2040, will come at an estimated cost of \$80 billion, while UAE’s Barakah Nuclear Energy Plant, comprised of four reactors and expected to go online in 2020, will cost some \$20 billion.

However, experts from the field point out that all these cost estimates are likely to be revised upward. Although it is premature to make any conclusion about whether or not all of the Middle Eastern nuclear projects will be completed or not, it is clear that investments in nuclear programmes

will put a significant pressure on public finances, which could be especially troublesome in the era of volatile oil prices.

Finally, significant external costs of defending these plants against attacks, along with the costs of nuclear waste management and decommissioning, brings to the conclusion that nuclear power plants themselves can hardly compete against their alternatives.

Ali Ahmad, chief of the Energy Policy and Security in the Middle East Programme at American University of Beirut explained that unlike the dramatic decline of the capital costs of renewables, nuclear costs have risen mainly due to time overruns and technological adaptation to strict safety and quality control, which by the way, doesn't change the fact that nuclear power remains a risky endeavour. According to Henry Sokolski, executive director of the Nonproliferation Policy Center and Dr Alexander G. Savelyev, the chief research scientist at Primakov National Research Institute of World Economy and International Relations, photovoltaics are now being bid in the Middle East below two cents per installed kilowatt hour. Moreover, concentrated solar power, which heats up sodium during the day and operates all night, is coming in well below eight cents.

Nuclear, in contrast, is now pegged to cost roughly 11 cents. Additionally, Ali Ahmad noted that "cost reductions in solar CSP and storage (variety of technologies) would further increase the penetration of renewables in the grid. In our transition to a complete "green economy", the coupling between renewables, storage, and natural gas seems more economically sound," So, will the rise of more affordable renewable alternatives, along with security and proliferation concerns slow down the development of the nuclear programs in the Middle East? According to the Martin Malin, the Executive Director of the Project on Managing the Atom at the Belfer

Center, nuclear energy is not likely to grow or spread quickly in the Middle East. The primary reason is cost. High up-front capital costs make nuclear energy more expensive than readily available natural gas, even if the price of gas increases substantially. The costs of solar and wind energy technologies are coming down quickly and present none of the safety, security, and proliferation risks associated with nuclear power. These risks also feed public reservations about nuclear technology in the Middle East region and beyond.

Matter of Prestige: However, the policymakers are not always following the economics.

Many believe that one of the main reasons for pursuing nuclear technology, especially in the Gulf States, is primarily a matter of prestige and competition, particularly with Iran, so their nuclear ambitions may be understood as the security defence doctrine. For Ali Ahmad, the decision to invest in nuclear power across the Middle East is not based on economic reasoning. "In my opinion, the real reasons for deploying nuclear power in the region are the mixed perception of prestige and technological advancement as well as a means for geopolitical "rebalancing," particularly in the case of the Iran-Saudi rivalry," he told *The New Arab*.

A similar view is shared by William Tobey, a former US Deputy Administrator for Defense Nuclear Nonproliferation at the National Nuclear Security Administration from 2006-2009, and current Senior Fellow, Belfer Center for Science and International Affairs. Tobey noted that "some states seem to see nuclear energy as a matter of geo-strategic prestige, even though other advanced technologies such as information technology or artificial intelligence offer far broader applications and greater economic benefits than nuclear technology, which is both old and a technological cultural-de-sac."

However, the policymakers are not always following the economics. Many believe that one of the main reasons for pursuing nuclear technology, especially in the Gulf States, is primarily a matter of prestige and competition, particularly with Iran, so their nuclear ambitions may be understood as the security defence doctrine.

Marco Giuli, a Policy Analyst in the Sustainable Prosperity and the Europe in the World Programme at the European Policy Centre (EPC), explained that as Middle East countries need to develop energy production fast and since they are conveniently located where both fossil fuels and renewables are cheapest, nuclear does not, in fact, represent a very appealing option. "Nuclear development seems more as a way, for many countries in the region, to catch up with nuclear developments in Iran – and another means to conduct a multi-vectoral foreign policy in an era of uncertainty and shifts in the international system," he told *The New Arab*.

Renewables vs. Nuclear: Despite great potential, GCC countries have made little investment in renewable technology. In the last two years, many new projects have been announced, but it remains to be seen how and when they will be materialised. According to the Strategy & Middle East, investments within GCC's renewable energy are set to reach just \$16 billion by 2020. Still, there are major structural and institutional factors influencing the region's current underinvestment into renewable energy – such as generous fuel subsidies, unclear regulatory and policy frameworks that discourage the development of renewables.

On the other hand, lowering the barriers to nuclear energy in the Middle East, according to Malin, will require major investments in technology, regulatory institutions, and education and training. Some of this is happening. It will also require unprecedented regional cooperation to reduce fears that nuclear energy programmes in neighbouring states are not a cover for nuclear weapons development. Under the present political

circumstances, such cooperation remains a remote prospect. Giuli noted that the transition from civil nuclear power use to nuclear weapon

production is not automatic and straightforward. And if all Arab countries were to commit to purchasing nuclear fuel from abroad, like the UAE and Bahrain, fears that proposed civilian programmes could evolve into weapons development would significantly diminish.

West in Decline: Despite becoming expensive, uneconomical and obsolete, nuclear energy programmes are still relevant issue across the region. Since the White House is very supportive of nuclear development, countries like Saudi Arabia and the UAE are seizing the moment to build their own programmes. The same goes for Russia and China, which are highly interested in exporting nuclear technology. Nuclear development in the region is also a highly sensitive geostrategic issue, with global key players battling for greater influence over the Middle East. Since the nuclear development is unimaginable without

foreign expertise, nuclear diplomacy and politics are gaining their momentum. A general belief is that Russia is far ahead of its peers, as its global share of nuclear power plant market has now reached 60 percent. Russia has won contracts to build 34 reactors in 13 countries, with an estimated total value of \$300 billion.

After adding several Arab states such as long-term US allies Jordan and Turkey to its list of nuclear plant clients, Russia has proved that it is becoming an undisputed leader in the nuclear energy sector. In addition, Egypt signed a memorandum with Russia in 2015, under which Moscow will extend cooperation in the

Investments within GCC's renewable energy are set to reach just \$16 billion by 2020. Still, there are major structural and institutional factors influencing the region's current underinvestment into renewable energy – such as generous fuel subsidies, unclear regulatory and policy frameworks that discourage the development of renewables.

Since the nuclear development is unimaginable without foreign expertise, nuclear diplomacy and politics are gaining their momentum. A general belief is that Russia is far ahead of its peers, as its global share of nuclear power plant market has now reached 60 percent. Russia has won contracts to build 34 reactors in 13 countries, with an estimated total value of \$300 billion.

construction of Egypt's first nuclear power station at El Dabaa. In the case of Middle East, Russia is on the way to win nuclear power contracts with all countries except the United Arab Emirates, which cooperates with South Korea and Israel which is not a signatory of the NPT.

So, what makes Russian offers so attractive and does it mean that Russian technology and standards will become a leader in the nuclear sector? The key to Russian success lies in the plants being priced 20 to 50 percent lower than their Western counterparts as well as in more than generous funding by Moscow and "full support" for projects undertaken by Rosatom.

Russia has been very active in securing private sector funds, which are operating abroad enabling Russia to construct, operate and own or partly own, nuclear plants abroad.

However, many predict that China will sooner or later become Russia's main competitor due to its growing know-how and export-orientated strategy.

A Glimpse to the Future: Some believe that once nuclear-friendly administration of US President Trump leaves office, the nuclear power lever may not remain as attractive and available to the explosive Middle East. According to Malin, the US policy in the Middle East has been so erratic under President Trump that the administration's policies on nuclear cooperation are lost in the noise. In any case, US companies have not been very competitive as Middle Eastern countries consider their options and pursue contracts for nuclear development. This situation is unlikely to change in the near term no matter who is the US president. The absence of US nuclear policy engagement and

Russia has been very active in securing private sector funds, which are operating abroad enabling Russia to construct, operate and own or partly own, nuclear plants abroad. However, many predict that China will sooner or later become Russia's main competitor due to its growing know-how and export-orientated strategy.

companies in the Middle East may further undermine Washington's ability to shape their standards of non-proliferation safeguards, safety, and security developed and implemented in the Middle East.

Some environmental organisations as well as Western states, raised their concerns over the issue of nuclear fuel waste from

newly constructed nuclear plants, especially in the countries that are newcomers in the nuclear energy club. According to them, Russia has less strict standards and control of nuclear waste, which may pose a serious environmental and security threats in the already highly volatile region. Numerous political disputes in the region may impact the safety standards as well as security and standardisation throughout the nuclear fuel cycle. According to Malin, if the states of the region could reach an agreement that no state will produce highly enriched uranium, or reprocess spent nuclear fuel, and that any enrichment of uranium will take place within a regional or multinational framework, then the spread of light water reactors for generating electricity in the Middle East would be less of a concern. Dr Matthew Cottee, Research Associate,

Non-Proliferation and Nuclear Policy Programme at IISS states that there is a possibility that regional interest in nuclear energy will generate a common objective of safe and secure nuclear facilities, perhaps in the form of a regional organisation that could support the IAEA and work across the region to ensure certain standards of

safety, safeguards, and security.

"However, ongoing political tensions in the region suggest this will be difficult to achieve, "he

If the states of the region could reach an agreement that no state will produce highly enriched uranium, or reprocess spent nuclear fuel, and that any enrichment of uranium will take place within a regional or multinational framework, then the spread of light water reactors for generating electricity in the Middle East would be less of a concern.

concludes. Therefore, Ali Ahmad believes that preventing nuclear proliferation and eliminate the use of nuclear power due to its inherent security risks should be a shared global responsibility. However, according to him, what the US can do is to help with providing incentives for countries to move away from nuclear power. These incentives can be political such as by helping with reducing tension and building trust in the region and/or technical such as providing access to facilitated renewables financing and advanced American technologies, particularly in energy storage and help with upgrading the electricity grid.

Source: <https://www.alaraby.co.uk>, 22 August 2018.

OPINION – Wang Peng

US Indo-Pacific Strategy: A Mixture of “Hedging” and “Wedging”

From the second half of 2017 until he demitted office, the term “Indo-Pacific” was used repeatedly by US Secretary of State Rex Tillerson, representing the first appearances of the term in the official rhetoric of the Trump administration. In November 2017, President Trump further elaborated on the concept in his speech at the APEC summit. Since then, with the release of the “National Security Strategy,” the “National Defense Strategy,” and the “Nuclear Posture Review” of the US, “Indo-Pacific” has been elevated in significance from official rhetoric to national strategy and the relevant policies concerning national security and national defense security, in particular, have been put in place. After the US Pacific Command was renamed the US Indo-Pacific Command on May 30, 2018, it was widely believed in the international community that the Trump administration would continue implementing the

After the US Pacific Command was renamed the US Indo-Pacific Command on May 30, 2018, it was widely believed in the international community that the Trump administration would continue implementing the Indo-Pacific strategy as one of its signature strategies. At the renaming ceremony, US Defense Secretary James Mattis publicly stated that this move was largely in response to China’s strategic challenges because “the Indo-Pacific has many belts and many roads.”

Indo-Pacific strategy as one of its signature strategies. At the renaming ceremony, US Defense Secretary James Mattis publicly stated that this move was largely in response to China’s strategic challenges because “the Indo-Pacific has many belts and many roads.”

“Hedging” means “double-sided betting” in general. To be specific, economically, the US maintains trade with China while suppressing Chinese imports by means of trade disputes to narrow the trade deficit, and impeding China’s scientific and technological progress and industrial upgrading by using a technology embargo. In terms of security, the US maintains engagement and negotiation with China to avoid a direct war between the major nuclear powers, while co-opting countries such as Japan, India, and Australia to strengthen its alliances so as to check and undermine China.

“Wedging” means sowing discord. Trump’s “America First” policy dictates that the US should shy away from some of its international obligations, and limited US national strength makes it impossible for the US to concentrate on the Asia-Pacific region. Under these circumstances, by fueling the existing conflicts or invoking new ones between China and other major Indo-Pacific countries, the US expects to see other countries confront China on its behalf so that its strategic pressure and economic burden can be reduced. By so doing, the influence and leadership of the US in the Indo-Pacific will be strengthened as those countries will depend on the US even more for security and political assistance. They may buy more (weapons) from the US, which will help boost the US economy and create jobs and improve the relations between the Trump administration and interest groups. Ultimately, the US will achieve dual purposes: maintaining US hegemony internationally at a lower cost while consolidating Trump’s power domestically.

Inherent Contradictions and Weaknesses of the Indo-Pacific Strategy: The Indo-Pacific strategy may pose a certain threat to China, but, as a compromised solution of the Trump administration in the face of a series of dilemmas at home and abroad, this strategy also has some inherent contradictions and weaknesses.

1. Strategic Contraction vs. Hegemonic Maintenance: If Trump really wants to “Make America Great Again” and sticks to the principle of “America First,” the US needs to “hide its capacities and bide its time” as to what China has been doing over the past decades, so as to achieve global strategic contraction and thereby concentrate resources on its domestic development and renew its core competitiveness. However, the rising global threats and challenges have made it impossible for the US to achieve strategic contraction. In addition, influenced by domestic (military) interest groups and other factors, the Trump administration has further increased military spending and increased efforts to maintain its global hegemony.

2. Comprehensive Containment vs. Continued Engagement: The rapid rise of China has led to a narrowing of the gap between China and the US. At the same time, a better understanding of China’s political model, development path, and projected international influence has made the US feel more determined to contain China. However, due to China’s overall national and economic strength, the huge risks of direct military conflict between the two nuclear powers, and the close security and trade ties between them, it is impossible for the US to launch preventive military strikes against China or adopt the kind of “containment” policy it did to the Soviet Union during the Cold War. The US has no choice but to keep checking and impeding China, and, in the meantime, maintain engagement and cooperation with it in security and trade.

3. Comprehensively Suppressing China vs. Making Enemies Everywhere: To counter the perceived

challenge from China, the Obama administration, with limited overall national strength, chose to reduce the presence of the US in the Middle East so as to concentrate on achieving its “Rebalance to the Asia-Pacific” strategy.

However, considering national interests and influenced by domestic lobby groups, Trump vigorously strengthened the alliance between the US and Israel and aligned their common strategic goals since he took office. He pulled out of the Iran nuclear deal and angered Arab

allies by moving the US embassy in Israel to Jerusalem. In Syria, Russia has an advantage now. In the wider Middle East region, Iran, Iraq and Syria have shown a tendency to build a “Shia Crescent.” These factors work together to “anchor” American power in the Middle East. At the same time, the failure to reconcile with Russia has led to an aggravated confrontation between the

two countries, leaving the US unable to make a strategic withdrawal from Eastern Europe. Therefore, the US urgently needs to turn to its allies for help to ease its strategic pressure in containing China.

4. Aid Allies vs. Benefit itself at Every Opportunity: During the Cold War, the US and the USSR competed to support their allies to fight “proxy wars”. In the Obama era, the US attempted to reach the Trans-Pacific Partnership (TPP) Agreement and other regional cooperative initiatives to exclude China by yielding part of its profits to these signatories. That required the US to provide benefits to its allies in exchange for their strategic support, which runs counter to Trump’s “America First” principle that attempts to re-establish “fairer” and more “reciprocal” agreements with all trade partners.

Faced with the dilemma of wanting to remain leader of an alliance without providing any benefit, the US can only rely on the “wedging”

In Syria, Russia has an advantage now. In the wider Middle East region, Iran, Iraq and Syria have shown a tendency to build a “Shia Crescent.” These factors work together to “anchor” American power in the Middle East. At the same time, the failure to reconcile with Russia has led to an aggravated confrontation between the two countries, leaving the US unable to make a strategic withdrawal from Eastern Europe.

strategy to sow discord between China and other (Indo-Pacific) countries or to worsen the relations between them. The US tries to make these countries feel a strategic need of their own to contain China, so that they may confront China on behalf of the US. This will help reduce the strategic burden of the US, increase other (Indo-Pacific) countries' dependence on the US for security and economic support and ultimately strengthen the leadership of the US in the Indo-Pacific region.

Source: <https://news.cgtn.com>, 20 August 2018.

NUCLEAR STRATEGY

CHINA

China Boosts Nuclear Readiness

China added significant numbers of bombers to its military forces in 2017 as part of a large-scale military build-up targeting the US, a Pentagon's report on the Chinese military says. The annual report to Congress also reveals that China's People's Liberation Army increased long-range bomber flights further from Chinese coasts and conducted training for airstrikes against the U.S. bases in Asia. "Over the last three years, the PLA has rapidly expanded its overwater bomber operating areas, gaining experience in critical maritime regions and likely training for strikes against U.S. and allied targets," the report said.

Year 2018 report, made public on 17 August...highlights China's growing asymmetric warfare capabilities. Those capabilities include space weapons, advanced cyber-attack capabilities, information warfare tools, and electronic warfare systems designed for short,

high-intensity conflicts. "China is advancing a comprehensive military modernization program aimed at making the PLA into a 'world-class' military by 2049," the report said. "This program includes improvements to military capabilities to conduct nuclear deterrence, anti-access/area denial (A2/AD), and power projection operations."

One striking disclosure in the report is the build-up of Chinese bombers. In 2017,

the number of Chinese bombers and strike aircraft increased by 130, from 400 bombers in 2016 year to 530 bombers in 2017. Special mission aircraft, such as transport and refuelling planes, also increased by 15. China also expanded its coast guard forces adding 55 coast guard ships to its forces. The increase likely reflects China's efforts to seek to control contested waters in the South China Sea and East China Sea. The total number

of active ground troops also increased over the past year with the addition of 65,000 combat troops. The increase is unusual since China has been seeking to streamline its ground forces by retiring large military personnel.

The PLA reduced the number of group armies around the country from 18 to 13 over the past year. Military reforms have led to large-scale protests in Beijing and several others cities by groups of former

PLA soldiers seeking better treatment from the government. China also added 400 tanks and 2,600 artillery pieces over the past year. Strategic nuclear forces in China also are expanding and the report said the PLA is increasing the readiness of its nuclear forces."China is enhancing peacetime readiness levels for these nuclear forces to ensure responsiveness," the report says. Chinese military writings indicate the PLA Rocket

One striking disclosure in the report is the build-up of Chinese bombers. In 2017, the number of Chinese bombers and strike aircraft increased by 130, from 400 bombers in 2016 year to 530 bombers in 2017. Special mission aircraft, such as transport and refuelling planes, also increased by 15. China also expanded its coast guard forces adding 55 coast guard ships to its forces.

China is enhancing peacetime readiness levels for these nuclear forces to ensure responsiveness," the report says. Chinese military writings indicate the PLA Rocket Forces, the service in charge of nuclear systems, have discussed the use of "launch on warning"—a heightened readiness for attacks based on improved surveillance of foreign nuclear forces and streamlined military decision-making "to enable a more rapid response to enemy attack," the report said.

Forces, the service in charge of nuclear systems, have discussed the use of “launch on warning”—a heightened readiness for attacks based on improved surveillance of foreign nuclear forces and streamlined military decision-making “to enable a more rapid response to enemy attack,” the report said.

Forces, the service in charge of nuclear systems, have discussed the use of “launch on warning”—a heightened readiness for attacks based on improved surveillance of foreign nuclear forces and streamlined military decision-making “to enable a more rapid response to enemy attack,” the report said.

The Chinese also are developing a space-based early warning system to support the launch on warning nuclear posture. Launch on warning refers to nuclear posturing that calls for launching nuclear missiles from launchers and bombers before an enemy’s warheads or bombs reach targets in China. Most of China’s nuclear strike forces are long- and medium-range missiles and all are being upgraded as part of the build-up. “ICBMs debuting or under development represent a significant improvement in China’s nuclear-capable missile forces,” the report said. The current force of up to 100 ICBMs includes six types of solo-based and road-mobile missiles including many equipped with multiple, independently targeted re-entry vehicles or MIRVs. Two additional missiles are in development, including the multiple-warhead DF-41—to be deployed on road-mobile, rail-mobile and silo launchers, and an additional road-mobile ICBM.

China also is expanding its submarine forces with new ballistic missile and attack submarines. Four nuclear missile submarines are deployed and at least one more is under construction. A follow-on missile submarine will be built in the early 2020s and will be armed with a new submarine-launched ballistic missile. Chinese bombers currently include the H-6 and plans are underway for an advanced stealth bomber similar to the U.S. B-2 that the Pentagon says will be designated the H-20. The new stealth bomber will be deployed in the next decade with a range of at least 5,281 miles and a

China also appears to be building a new refuel able bomber that could be deployed before the H-20 that will expand offensive bomber capabilities far into the western Pacific. Two new air-launched ballistic missiles are being developed, one of which will be nuclear armed.

payload of 10 metric tons—for both nuclear and conventional missiles.

China also appears to be building a new refuel able bomber that could be deployed before the H-20 that will expand offensive bomber capabilities far into the western Pacific. Two new air-launched ballistic missiles are being developed, one of which will be nuclear armed.

China claims to adhere to a “no-first-use” nuclear policy that states Beijing would not be the first to use nuclear arms in a war. However, the Pentagon is questioning Beijing’s sincerity regarding the pledge. PLA officers have written that nuclear weapons might be used first if a conventional attack threatens China’s nuclear arsenal, much of which is hidden in deep underground bunkers, the report said. “China’s lack of transparency regarding the scope and scale of its nuclear modernization program raises questions regarding its future intent,” the report said. In addition to expanding nuclear missiles and bombers, China is upgrading its nuclear command and control systems to handle both expanded mobile missiles and missile submarine patrols. The command and control networks are needed to “safeguard the integrity of nuclear release authority for a larger, more dispersed force,” the report said.

Regarding increased regional bomber capabilities, the report said the H-6K variant poses a threat to U.S. military bases in the western Pacific, including Guam. The longer-range H-6K bomber is armed with long-range cruise missiles that provide the PLA air force with “an offensive strike capability against Guam” with land attack cruise missiles. The strike capability has been improved by China’s use of airborne warning and control aircraft to support the bomber flights. China in 2016 flew bombers around rival Taiwan in a show of force, and also flew the bombers in the South China Sea. “H-6s

could, if deployed to airfields in the Spratly Islands, extend their range through the Balabac Strait into the Celebes Sea or through the Sunda or Malacca Strait to fly into the Indian Ocean," the report said. China also recently flew six H-6 bombers for the first time through the Sea of Japan. "These flights demonstrated a maturing capability for H-6K bombers to conduct off-axis strikes against U.S. and allied facilities," the report said.

... China, Russia, and the US are all working to develop hypersonic missiles—those capable of manoeuvring en route to targets while traveling at over 7,000 miles per hour. The high-speed missiles are intended to defeat increasingly capable missile defenses. China has developed an advanced integrated air defense system of radar, sensors and missiles that include a variety of very capable anti-aircraft and anti-missile interceptors, including plans to purchase Russia's S-400 system in the future. ...

In 2016 that China could build up to 20 floating nuclear plants to "speed up the commercial development" of the South China Sea.... Beijing claims more than 80 per cent of the South China Sea, which carries around US\$3.4 trillion (\$4.7 trillion) worth of global trade each year. Five other countries - including the Philippines and Vietnam - also have claims in the waters.

Source: <https://freebeacon.com>, 17 August 2018.

China has Nuclear Plans in South China Sea

The Pentagon has sounded a warning over China's plans to introduce floating nuclear power plants on disputed islands and reefs in the South China Sea. In a new annual report assessing the nation's military strength released on 16 August, it said Chinese bombers are also likely training for strikes against US and allied targets in the Pacific. "China's plans to power these islands may add a nuclear element to the territorial dispute," the Pentagon said in its 2018 report to Congress titled "Military and Security Developments Involving the People's Republic of China".

"China indicated development plans may be under way to power islands and reefs in the typhoon-prone South China Sea with floating nuclear power stations; development reportedly is to begin prior to 2020." Its *Securities Journal* - a Chinese state-run financial newspaper - said in 2016 that China could build up to 20 floating nuclear plants to

"speed up the commercial development" of the South China Sea.... Beijing claims more than 80 per cent of the South China Sea, which carries around US\$3.4 trillion (\$4.7 trillion) worth of global trade each year. Five other countries - including the Philippines and Vietnam - also have claims in the waters.

US-China military ties have deteriorated of late, with the Trump administration in May revoking an invitation for Beijing to join in Pacific naval exercises due to its activities in disputed parts of the sea. China has reclaimed 1,295ha of land in the Spratly island chain and militarised it with

ports, runways and other military infrastructure. In the case of its air power, the report states that Chinese bombers are developing capabilities to hit targets as far from China as possible. "Over the last three years, the PLA has rapidly expanded its overwater bomber operating areas, gaining experience in critical

maritime regions and likely training for strikes against US and allied targets," it stated, noting how China is pushing its operations out into the Pacific. The PLA may demonstrate the "capability to strike US and allied forces and military bases in the western Pacific Ocean, including Guam", the report said.

In August 2017, six Chinese H-6K bombers flew through the Miyako Strait in the south-west of the Japanese islands, and then for the first time turned north to fly east of Okinawa, where 47,000 US troops are based. China is engaged in a decades-long build-up and modernisation of its once backward armed forces, and military leaders have set a goal of fielding a world-class military by 2050. Chinese President Xi Jinping last year ordered the PLA to step up efforts, saying China needed a military ready to "fight and win" wars.

Source: <https://www.straitstimes.com>, 18 August 2018.

INDIA

How Agni-V Induction will Enhance India's Nuclear Deterrence

Recent reports suggest that India's Agni-V IRBM with a strike range of 5000kms is ready for induction. The Indian military has always been careful in choosing its words right and any acquisition of weapon systems during peace time is termed as 'induction' by the Indian armed forces. Deployment is a more aggressive term that relates to a war time or crisis situation. The missile has the capability of striking the northernmost parts of China and can carry nuclear warheads. Thus, it is a deterrent against China's nuclear capabilities.

Standoffs between India and China are not uncommon. In addition, China's nuclear policy is clear on the fact that its 'no-first use' policy only holds true as long as the territory does not belong to them. China has kept open the option of using nuclear weapons first in a territory they consider their own. Thus concerns remain alive regarding the 'first-use' of nuclear weapons in Arunachal Pradesh, an Indian state which China considers to be a part of its territory. Hence, India's nuclear deterrence needs to be credible enough to deter China from attacking any Indian territory with nuclear weapons. New Delhi has been very careful to restrict the range of the missile at the moment to 5000km by keeping the missile's flight trajectory a depressed one. A depressed and lofted trajectory result in the reduction of range of the missile. There are also reports that the range of the missile was purposely restricted to an IRBM capability due to diplomatic pressures from the United States, though these reports have been denied by the government of India.

India's nuclear deterrence needs to be credible enough to deter China from attacking any Indian territory with nuclear weapons. New Delhi has been very careful to restrict the range of the missile at the moment to 5000km by keeping the missile's flight trajectory a depressed one. A depressed and lofted trajectory result in the reduction of range of the missile.

India's nuclear deterrence needs to be credible enough to deter China from attacking any Indian territory with nuclear weapons. New Delhi has been very careful to restrict the range of the missile at the moment to 5000km by keeping the missile's flight trajectory a depressed one. A depressed and lofted trajectory result in the reduction of range of the missile.

Agni-V in future would be equipped with MIRVs. MIRVs are multiple warheads fitted on a single re-entry vehicle. These warheads are miniaturised nuclear warheads rather than a single warhead. Such systems enable a ballistic missile to evade enemy missile defence system. The missile like the other ones in the Agni category missile system is a solid-propellant missile system that is mobile. One of the key improvements in the Agni-V system is its ability to be canister launched. Canister launched system indicates that missiles could be mated with their warheads.

There is a concern therefore that canister launched missile could indicate that India could make a shift from its 'recessed deterrence posture' to a 'ready deterrent posture'. Recessed deterrence posture is a posture in which missiles are not mated with their warheads while in ready deterrent posture the warheads are mated with their delivery systems. Recessed deterrence posture puts lesser burden on the command and control of the nuclear forces, hence, managing a ready deterrent posture could be a challenge for the nuclear command and control in India. However, canister launched missiles can be preserved for years.

The missile is reported to use advanced gyroscopes and accelerometers that can improve the accuracy of the missile system. Carbon-to-carbon composites ensure that the payload inside is safe amid the high temperature. The missile has been constantly test fired in order to ensure its operational readiness. Induction of the missile into India's nuclear arsenal would clearly signal that the country is moving towards a 'credible minimum deterrence' posture whereby it is developing nuclear deterrent capability that can strengthen deterrence against both Pakistan and China. However, according to the Cold War literature, MIRVs have always been first strike

weapon systems. MIRVs on Agni-V can convey a message to China that India has given up on its 'no-first use' doctrine, which is highly debated considering that Pakistan does not adopt a 'no-first use' doctrine.

However, no-first use doctrine by both China and India keeps the nuclear threshold high between the two countries. Hence, it is very important that India is able to convey to China that MIRVs would not be used as a first strike weapon system but only as a deterrent, ensuring India's counter-strike and second strike capability.

Should the United States fear the Agni-V? India has built up a successful partnership with the United States in the recent times. It is also a member of the Quadrilateral Security Dialogue (QUAD). India's relevance in the Indo-Pacific region is well fathomed by the United States as it sees India as a partner that could help counter the Chinese influence in the Indo-Pacific region. In fact in 2012, when India test-fired Agni-V, the United States hardly raised any criticisms against India for doing so. Though the United States urged India to "exercise restraint" on their nuclear capability, the former also praised India then for its strong non-proliferation record. Of course, the United States realised that India would attain capabilities that could reach targets in China so as to keep the Chinese concerned.

How it Affects China?

Having a country whose nuclear capability may put its security at stake does not make the Chinese comfortable. In fact, in 2012, China's Global Times, a daily that has close connections with the Chinese Communist Party had expressed concerns, "India should not overestimate its strength. Even if it has missiles that could reach most parts of China, that does not mean it will gain anything from being arrogant during disputes with China." Agni-V is a China specific nuclear deterrent and the decision to induct the missile just within a year after the Doklam standoff is a clear indication to China to

not mess with India. The tough stance during the crisis from India's side helped it gain a diplomatic victory over China. However, there is always a possibility of another Doklam-type standoff between the two countries. Thus, India now needs to be prepared with a credible nuclear deterrence. In the near future, India's nuclear capability could probably coerce China to agree to India's entry into the NSG that China has been blocking for years, despite the West now showing positive signs of India's entry into the NSG.

Agni-V would surely prove its mettle as a weapon system that enhances India's nuclear deterrence but could also become a diplomatic weapon that could ensure India's ability for coercive diplomacy vis-à-vis China.

Source: <https://www.theweek.in>, 22 August 2018.

BALLISTIC MISSILE DEFENCE

INDIA

India's Missile Defenses can Now Take on Decoys

There is always a possibility of another Doklam-type standoff between the two countries. Thus, India now needs to be prepared with a credible nuclear deterrence. In the near future, India's nuclear capability could probably coerce China to agree to India's entry into the NSG that China has been blocking for years, despite the West now showing positive signs of India's entry into the NSG.

India's efforts to build a home-grown ballistic missile defense system achieved a major success. On 2 August, India tested its Advanced Area Defence (AAD)/Ashvin Advanced Defense interceptor missile against decoy targets for the first time. "One target among simultaneously incoming multiple targets was

selected on [sic] real time, the weapon system radars tracked the target and the missile locked on to it and intercepted the target with a high degree of accuracy," India's government announced in a press release. The test was against a medium-range ballistic missile with a range of 1,500 kilometres.

Franz-Stefan Gady of *The Diplomat* speculates that this was the first test of the new indigenous imaging infrared (IIR) seeker, which was developed to help the interceptors distinguish

warheads from decoy/dummies. This capability is increasingly necessary as countries like China and Pakistan develop MIRV and MRVs. MIRVs allow a single missile to aim warheads at different targets whereas MRVs contain multiple warheads but at the same target. The use of decoys is a more cost effective way to try to confuse missile defense systems enough so that the warheads get through to their target. Either way, though, India's missile defense systems will need to be able to engage multiple targets simultaneously.

Source: <https://nationalinterest.org>, 13 August 2018.

India to Induct Most Advanced Nuclear-Tipped ICBM in December

The MoD is expected to officially induct its most advanced nuclear-capable ICBM, the Agni-V, in December, according to local media reports. The Agni-V, a three-stage ICBM officially designated by the MoD as an IRBM, is expected to undergo one more pre-induction test in the fall. The missile was last test fired from a mobile launcher from the Integrated Test Range on Abdul Kalam island in the Bay of Bengal off the coast of the eastern Indian state of Odisha in June. It was reportedly the sixth successful test of the Agni-V ICBM.

Previous tests occurred in January 2018, December 2016, January 2015, September 2013, and April 2012. Whereas, the June and January as well as the January 2015 tests involved Agni-V ICBMs in deliverable configuration launched from sealed canisters, other missile tests had the Agni-V in 'open configuration. 'An operational deployment of the Agni-V ICBM—designed to provide India with a second-strike capability—would require at least two additional test launches (user trials) by India's SFC. Development of the Agni-V kicked off in 2008. The missile features indigenously designed navigation and guidance systems including a ring laser gyroscope based inertial navigation system....

Source: <http://www.defencenews.in>, 21 August 2018.

INDIA

India Set to Get S-400 Triumph Air Defence Missiles, Deal with Russia

Defence Minister Nirmala Sitharam, too, had in July 2018 said that India will go ahead with the S-400 missile deal with Russia despite reservations expressed by the United States of America. India and Russia are likely to sign the agreement to supply the S-400 Triumph (NATO code: SA-21 Growler) air defence missile by the end of 2018. According to Russia's Federal Service for Military-Technical Cooperation chief Dmitry Shugayev the two countries have agreed on the main aspects of the S-400 Triumph missile system and it is just a matter of time before the deal is inked. "We are fully ready to sign this contract. Its foundation was laid, and almost all aspects were coordinated. We plan to sign this contract before the end of this year," Dmitry Shugayev told Rossiya 24 television channel on 22 August.

The Agni-V, a three-stage ICBM officially designated by the MoD as an IRBM, is expected to undergo one more pre-induction test in the fall. The missile was last test fired from a mobile launcher from the Integrated Test Range on Abdul Kalam island in the Bay of Bengal off the coast of the eastern Indian state of Odisha in June.

Defence Minister Sitharaman, too, had in July 2018 said that India will go ahead with the S-400 missile deal with Russia despite reservations expressed by the US. India and Russia are likely to formalise the agreement during the PM Modi and Russian President Putin meet in October 2018. Sitharaman had pointed out that US sanctions against Russia under its Countering America's Adversaries Through Sanctions Act (CAATSA) did not affect India and there was nothing to worry about because they were not imposed by the UN. The Defence Acquisition Council had on July 2, 2018, cleared the purchase of S-400 anti-aircraft missile systems. Only July 24, 2018, a US Congressional committee had proposed waivers for some countries like India from punitive sanctions against those doing business with Russia's defence industry.

The state-of-art S-400 Triumph air defence missile, which is much more advanced and lethal than any western system, has been in service with the Russian armed forces since 2007. The S-400 Triumph missiles can travel at a rate of 4.8

kilometres per second (17,000 km/h; Mach 14). The system can fire the following missiles - 48N6DM/48N6E3 (range 250km), 40N6 (range 400km, maximum altitude 185 km), 9M96E (range 40 km, maximum altitude 20 km) and 9M96E2 (range 120km, maximum altitude 30 km). At present, the S-400 Triumf system employs missiles which use a 143-kilogramme high-explosive fragmentation to kill the incoming aerial threat. But another missile 77N6 is under development which will have the hit-to-kill capability like the US Patriot air defence system. While the current system can destroy missiles as well as aircraft and drones, the 77N6 will be specifically deployed to target the ballistic missile threat.

Source: <http://zeenews.india.com>, 23 August 2018.

USA

US Plans to Upgrade Military Bases in Romania, Bulgaria

The US is set to invest almost \$27 million in modernising two military bases in Romania and Bulgaria, according to its defence budget for 2019. The US Army is set to invest almost \$27 million in Romania and Bulgaria in 2019, according to the record \$717 million defence budget signed on Tuesday by President Donald Trump. The budget envisages that US troops "continue rotational deployments to Romania and Bulgaria while taking full advantage of the training opportunities available at military locations such as Camp Mihail Kogalniceanu in Romania and Novo Selo Training Area in Bulgaria". It pledges more support and security cooperation with the two countries, as well as with Estonia, Latvia, Lithuania, Poland, Ukraine, Moldova and Georgia.

At present, the S - 400 Triumf system employs missiles which use a 143 - kilogramme high - explosive fragmentation to kill the incoming aerial threat. But another missile 77N6 is under development which will have the hit-to-kill capability like the US Patriot air defence system.

In Bulgaria, the US Army is scheduled to invest \$5.2 million in modernisation and construction at the Novo Selo Training Range, 70 kilometres from the Black Sea resort of Burgas. The Novo Selo Training Area is among the joint US-Bulgarian military bases established according to the 2006 Defence Cooperation Agreement between the two countries. The US Army started in 2008 with a \$61.15 million investment programme meant to develop new housing and other infrastructure for the American troops training at Novo Selo. For improving Romania's Mihail Kogalniceanu base and airport, located in the vicinity of Black Sea port of Constanta, the US Army intends to spend \$21.6 million in 2019.

However, for the fiscal year 2019 the Pentagon also received \$6.5 billion for its European Deterrence Initiative (EDI), a programme that began in 2016 and is intended to reassure Eastern European allies and deter Russia from further incursion into Europe following its annexation of Crimea. In June 2017, the US Army announced that it would spend up to \$60 million through the EDI

For the fiscal year 2019 the Pentagon also received \$6.5 billion for its European Deterrence Initiative (EDI), a programme that began in 2016 and is intended to reassure Eastern European allies and deter Russia from further incursion into Europe following its annexation of Crimea.

in upgrading the military base and airport in Mihail Kogalniceanu in Romania by the end of the year. The new US defence budget also provides \$12.9 million for the anti-missile shield systems, including the one in Deveselu in southern Romania, the only one which is currently operational in Eastern

Europe. The document published on the US Senate website does not refer directly to Deveselu, but insists on the development of the missile shield system in Alaska.

However on May 8, *Inside Defense* reported that the Missile Defence Agency has plans to give the land-based Aegis Ballistic Missile Defence system the means to intercept cruise missiles and aircraft, which would mean new investments in Romania.

The Aegis Ashore Missile Defence System would be equipped with Searams, a missile system designed to defend ships against cruise missiles, as well as unmanned aircraft and helicopters, so that it could simultaneously combat incoming ballistic missiles and lower-flying air threats.

US Missile Defence Agency Director Lieutenant

Lieutenant General Sam Greaves told a congressional hearing in April that two tests had already taken place in Deveselu and that the agency was waiting for funding for a new demonstration. But this programme would cost some \$94.7 million, he said. The Pentagon's first Aegis Ashore system in Romania's Deveselu, which cost some \$800 million, was optimised to intercept long-range ballistic missiles and has been operational since 2016. On August 3, when the US Congress approved the defence budget, Romania's president saluted the decision. "President Klaus Iohannis reiterates Romania's resolve to continue meeting its commitments at bilateral and allied level, as regards to the defence budget and the national contribution to NATO missions and operations, in line with the decisions taken at the [Western military alliance's] Wales Summit, the Warsaw Summit and the most recent one, in Brussels," said a statement from Iohannis's office.

Source: <http://www.balkaninsight.com>, 15 August 2018.

NUCLEAR ENERGY

CHINA

Two New Westinghouse Reactors in China Start Up

The first AP1000 unit at Haiyang in Shandong province has started up and been connected to the grid. Sanmen unit 2 in Zhejiang province has

also started up. Haiyang unit 2 there is only about two months behind unit 1, with fuel loading having

commenced. The first AP1000 reactor at Sanmen in Zhejiang province was grid-connected in June and has now reached full power. Each of these reactors is 1157 MWe net.

Source: <http://www.world-nuclear.org>, 17 August 2018.

The Aegis Ashore Missile Defence System would be equipped with Searams, a missile system designed to defend ships against cruise missiles, as well as unmanned aircraft and helicopters, so that it could simultaneously combat incoming ballistic missiles and lower-flying air threats.

GENERAL

World Nuclear Performance Report 2018 Published

The World Nuclear Association's annual Nuclear Performance Report indicates good performance by nearly 400 GWe of reactors in 2017. Global nuclear electricity output was 2506 TWh, continuing a steady increase. The average capacity factor globally stood at 81%, maintaining the high availability of the last two decades. There were 59 reactors under construction at the end of

2017. The median average construction time for the reactors grid connected last year (in China and Pakistan) was 58 months. There are 25 reactors due for completion in 2018 and 2019, and six of these have already been grid-connected in 2018. However, new projects are needed to maintain and accelerate nuclear build so that nuclear generation can

meet the Harmony goal of supplying 25% of the world's global electricity by 2050.

Source: <http://www.world-nuclear.org>, 16 August 2018.

The World Nuclear Association's annual Nuclear Performance Report indicates good performance by nearly 400 GWe of reactors in 2017. Global nuclear electricity output was 2506 TWh, continuing a steady increase. The average capacity factor globally stood at 81%, maintaining the high availability of the last two decades. There were 59 reactors under construction at the end of 2017.

JAPAN

Japanese Companies Plan Team Effort on Nuclear Energy

Four Japanese power companies are talking together about creating a joint venture on future nuclear power operations, according to news reports. Tokyo Electric Power Co., Chubu Electric

Power, Hitachi and Toshiba Corp. signed a MoU on 21 August on a potential alliance. The alliance would focus on future nuclear power activities including decommissioning of obsolete reactors....Several news outlets indicated that the integration opportunity is seen as key as Japan has struggled to restart its nuclear capacity in the wake of the Fukushima disaster seven years ago.

A nation which otherwise imports nearly all of its energy sources, Japan was generating at least 30 percent of its electricity from nuclear reactors in 2011. ... The nation has committed to accelerating its renewable energy goals over coming decades. The Fukushima facility suffered a meltdown and radioactive release, but not directly harmed residents in evacuated areas, according to reports.

Source: <https://www.power-eng.com>, 22 August 2018.

SOUTH KOREA

South Koreans Affirm Priority of Nuclear Power

A poll by the Korean Nuclear Society showed more than 71% of respondents supporting the use of nuclear energy in South Korea, with 26% against it. The survey also found that more than two thirds thought the government should expand or maintain the use of nuclear power plants, while less than 30% said the country should reduce its reliance on nuclear power, in line with government policy.

Source: <http://www.world-nuclear.org>, 16 August 2018.

NUCLEAR COOPERATION

RUSSIA-EURASIA

Rosatom Seeks to Boost Cooperation in Eurasia

Rusatom International Network - a subsidiary of Russian state nuclear corporation Rosatom - has

signed a memorandum of understanding and cooperation with the Eurasian Development Bank (EDB). The memorandum provides for establishing common principles of bilateral cooperation with Armenia, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan and other countries.

The agreement was signed on 10 August by Alexander Merten, president of Rusatom International Network, and Vsevolod

Smakov from the EDB. The parties agreed to jointly promote the implementation of Rosatom projects in high-technology areas, including: renewable energy sources, thermal power, nuclear medicine, the use of radiation technologies in industry, agriculture, food processing centres, construction and servicing of nuclear power plants and other complex engineering facilities.

In addition, the parties agreed to jointly determine the instruments and various forms of project financing with the participation of Rosatom organisations, provide information and consultancy support on project financing issues, participate in project promotion events (including conferences,

exhibitions, forums and seminars) and organise mutually beneficial information exchange. "The signing of the agreement...creates additional prerequisites for the successful implementation of projects in the field of traditional and renewable energy, nuclear medicine and other areas in EDB member countries where Rosatom enterprises are involved as suppliers of equipment and services, implementing certain projects, and are partners of local state and private companies," said Merten.

Source: <http://world-nuclear-news.org>, 13 August 2018.

A nation which otherwise imports nearly all of its energy sources, Japan was generating at least 30 percent of its electricity from nuclear reactors in 2011. ... The nation has committed to accelerating its renewable energy goals over coming decades. The Fukushima facility suffered a meltdown and radioactive release, but not directly harmed residents in evacuated areas.

A poll by the Korean Nuclear Society showed more than 71% of respondents supporting the use of nuclear energy in South Korea, with 26% against it. The survey also found that more than two thirds thought the government should expand or maintain the use of nuclear power plants, while less than 30% said the country should reduce its reliance on nuclear power, in line with government policy.

SOUTH KOREA–USA

S. Korea, US Reaffirm Resolve to Develop 'Strategic' Atomic Energy Partnership

South Korea and the US have reaffirmed their resolve to develop a "comprehensive and strategic" partnership in atomic energy, including cooperation on nuclear reactor exports....The two allies held the second meeting of the High Level Bilateral Commission (HLBC) in Washington on 16 August, led by Seoul's Vice Foreign Minister Cho Hyun and U.S. Deputy Secretary of Energy Dan Brouillette. "(The two sides) shared the view that cooperation between South Korea and the U.S. may not only expand the possibility of the two countries' companies advancing into a third country's nuclear reactor market but also contribute to international non-proliferation and energy security," the ministry said in a press release. They agreed to use an HLBC working group for follow-up discussions over ways to cooperate on tapping into foreign markets for nuclear reactor exports.

The commission was installed in line with the bilateral civil atomic energy cooperation accord last revised in 2015. Cho and Brouillette were briefed on progress in cooperative projects that have been carried out by four HLBC working groups in charge of spent fuel management, assured fuel supply, promotion of nuclear exports and nuclear security. After a briefing by the Nuclear Security Working Group, they agreed to drive international nuclear security endeavors through a set of initiatives such as minimizing the use of highly enriched uranium for research reactors and holding a workshop of the Global Initiative to Combat Nuclear Terrorism in Seoul next year. "(We) judge that the HLBC plenary session served as a meaningful chance to hold candid and substantive consultations over various matters of mutual interest," the ministry said. The two sides plan to hold the third HLBC plenary meeting next year in Seoul.

Source: <http://english.yonhapnews.co.kr>, 17 August 2018.

URANIUM PRODUCTION

INDIA

2017 "Exceptional" for DAE

The public sector undertakings and industrial units of India's DAE performed "exceptionally well" in 2017, DAE Chairman and Secretary Sekhar Basu said at celebrations marking the 71st anniversary of Indian independence on 15 August.

Nuclear generator NPCIL's 2017 profit of INR3367 crore (USD482 million) was its highest ever; UCIL achieved its highest ever production; and fuel cycle company Nuclear Fuel Complex (NFC) achieved 115% of its target production for the year, Basu said. Notable nuclear power sector

achievements included the longest operating run for the Kaiga 1 PHWR, which has now achieved over 826 days of continuous operation taking it to third in the world, he said. Basu also highlighted the start of excavations and equipment ordering for two 700 MWe

PHWRs at Gorakhpur; the signature in March 2018 with EDF of the Industrial Way Forward agreement for the establishment of six EPR units in Jaitapur; and the tripartite agreement between Bangladesh, India, and Russia for the establishment of Bangladesh's Rooppur nuclear power plant, for which India is also providing technical support.

Discussions with Westinghouse on six AP1000 reactors for Kovvada are continuing, Basu said. Achievements in the uranium sector included securing forestry clearance for the Jaduguda plant and environmental clearance for the Musubani plant in Jharkand, which will produce uranium as a by-product from copper tailings. "These milestones will lead to a good rise in uranium production in India," he said. The Atomic Minerals Directorate for Exploration and Research has established "over 3 lakh tons of U3O8 resources," Basu said (one lakh is 100,000). Two "smaller" uranium deposits have been established at Jahaj in Rajasthan and Kanchankayi in Karnataka, "We

Nuclear generator NPCIL's 2017 profit of INR3367 crore (USD482 million) was its highest ever; UCIL achieved its highest ever production; and fuel cycle company Nuclear Fuel Complex (NFC) achieved 115% of its target production for the year.

are now concentrating on stepping up exploration activities”....

Basu also highlighted approval for cost escalation for India’s involvement in the ITER project, which he said would help the country speed up its work towards its in-kind supply commitments. An intergovernmental agreement on a neutrino physics collaboration, signed with the USA’s Fermilab in April, has opened the possibility of for in-kind contributions by the two countries to each other’s neutrino projects, Basu said. A major refurbishment of the Dhruva research reactor was completed in a “compact time schedule” of 65 days. This was achieved without disrupting deliveries of radioisotopes to cancer hospitals through a “professional approach, systematic planning and efficient execution.” ...

Source: <http://world-nuclear-news.org>, 20 August 2018.

NUCLEAR PROLIFERATION

NORTH KOREA

UN Watchdog Says No Signs North Korea have Halted Nuclear Activities

The United Nations’ atomic watchdog has said it has not seen any signs that North Korea has halted its nuclear activities — including those at secret sites — despite its vows to work toward denuclearization at a landmark summit with the U.S. in June. “The continuation and further development of the DPRK’s nuclear programme and related statements by the DPRK are a cause for grave concern,” the IAEA said in a report released on 20 August, using the acronym for the North’s formal name, the Democratic People’s Republic of Korea.

A major refurbishment of the Dhruva research reactor was completed in a “compact time schedule” of 65 days. This was achieved without disrupting deliveries of radioisotopes to cancer hospitals through a “professional approach, systematic planning and efficient execution.

The report by IAEA Director-General Yukiya Amano, which is to be submitted to a board meeting of the body in September, characterized the North’s continuing activities at its nuclear facilities as “deeply regrettable.” The activities include those at the North’s Nyongbyon nuclear reactor complex, the use of the building that houses the reported centrifuge enrichment facility and ongoing construction at the site. The IAEA also appeared to confirm earlier reports of at least one separate, clandestine uranium enrichment site “within a security perimeter in the vicinity of Pyongyang.” It said the size

of the main building and the characteristics of the associated infrastructure at that site “are not inconsistent with a centrifuge enrichment facility” and “the timeline of construction is not inconsistent” with the North’s reported uranium enrichment program.

In July, media reports revealed that the North was secretly operating a suspected uranium enrichment facility, called Kangson. U.S. Secretary of State Mike Pompeo acknowledged during Senate testimony later in the month that North Korean factories “continue to produce fissile material” used in making nuclear weapons.

Joshua Pollack, editor of the U.S.-based *Non-proliferation Review* and a leading expert on nuclear and missile proliferation, said that the IAEA report should be taken seriously, noting that despite the North Korean intelligence black hole, it has “a track record of being meticulous.”

In 2009, Pyongyang booted IAEA inspectors from the Nyongbyon site and has since refused to allow inspections by the group on its territory. Instead, the group has bolstered its monitoring of the North via open source information and satellite imagery, according to the report.

“When @iaeaorg writes ‘not inconsistent with,’ they are being appropriately cautious,” Pollack wrote on Twitter. “That means that they see no reason to dispute the identification, but can’t independently confirm it, either.”

In 2009, Pyongyang booted IAEA inspectors from the Nyongbyon site and has since refused to allow

inspections by the group on its territory. Instead, the group has bolstered its monitoring of the North via open source information and satellite imagery, according to the report. "As the Agency remains unable to carry out verification activities in the DPRK, its knowledge of the DPRK's nuclear program is limited and, as further nuclear activities take place in the country, this knowledge is declining," it said.

Between late April and early May, there were indications of the operation of the steam plant that serves the radiochemical laboratory at Nyongbyon, the report said. However, the steam plant was not operating long enough to have supported the reprocessing of a complete core from the experimental nuclear power plant reactor, it added. The report also said that steam charges and the outflow of cooling water at the plant "consistent with the reactor's operation" had been observed. "Since December 2015, when the current operational cycle started, there have been indications consistent with several short periods of reactor shutdown," it said.

"However, none of these periods were of sufficient duration for the complete reactor core to have been discharged. The Agency's observations indicate that the current operational cycle is longer than the previous one." It also discovered "indications consistent with the use of the reported centrifuge enrichment facility located within the plant, including the operation of the cooling units as well as regular movements of vehicles."

Since U.S. President Trump's landmark June meeting in Singapore with North Korean leader Kim Jong Un, a steady trickle of reports citing U.S. intelligence and other sources have claimed that Pyongyang has continued to boost its nuclear fuel production and missile capabilities at multiple secret sites despite a denuclearization pledge agreed to at the historic meeting. At the Singapore summit, Kim and Trump reached a vague agreement to "work towards the complete denuclearization of the Korean Peninsula." But

while talks have continued, including a visit in early July to Pyongyang by U.S. Secretary of State Mike Pompeo, there has been little movement since the Kim-Trump meeting.

Speculation has grown that Pompeo will soon make his fourth visit to North Korea, with an apparent aim of breaking the impasse in denuclearization talks. On 19th August interview on ABC's "This Week," White House national security adviser John Bolton said that Pompeo would be returning to North Korea soon, this time for direct talks with Kim — or so the Trump administration hoped. In a report...the *Korea Times* said that North Korea has agreed to provide key information to the US about its nuclear warheads and secret test sites. "North

Korea plans to hand over a list of its secret nuclear test sites as well as information about its nuclear warheads to U.S. Secretary of State Mike Pompeo when he visits Pyongyang....

Source: <https://www.japantimes.co.jp>, 22 August 2018.

Moon, Kim to Meet in Sept in Bid to Break Impasse in Nuclear Talks

South Korean President Moon Jae-in and North Korean leader Kim Jong Un look set to hold their third summit in Pyongyang in September, as pressure mounts on Seoul to do more to break the impasse in denuclearisation talks between the North and the US. The summit decision was made during high-level talks between the North and South at the truce village of Panmunjom on 13 August. The two leaders agreed in April, when they met for the first time, to have a subsequent summit in the autumn. They met again in May ahead of Mr Kim's summit with US President Trump in June.

In a joint statement, the two Koreas said they had agreed to hold the fifth inter-Korea summit "within September in Pyongyang". The first summit between leaders of the two countries took place in 2000 with then North Korean leader Kim Jong Il hosting then South Korean President Kim Dae-jung, and this was followed by another meeting

In a report...the *Korea Times* said that North Korea has agreed to provide key information to the US about its nuclear warheads and secret test sites. "North Korea plans to hand over a list of its secret nuclear test sites as well as information about its nuclear warheads to U.S. Secretary of State Mike Pompeo when he visits Pyongyang.

in 2007 with then South Korean President Roh Moo-hyun. No date has been mentioned for the summit, leaving analysts to conclude that both sides could not agree on one. Pyongyang wanted it to take place before Sept 9, the anniversary of North Korea's founding....

But Seoul, wary of Pyongyang taking advantage of the summit for domestic propaganda, preferred to hold it just before the start of the UNGA session on Sept 18.... On 13 August, both sides reviewed the progress of implementing the Panmunjom Declaration - an agreement between their leaders in April to boost cooperation and work towards complete denuclearisation. The delegations also discussed "further methods to fulfil the declaration in a sincere manner", said a joint statement. South Korean Unification Minister Cho Myoung-gyon, who led the talks with North Korean chief delegate Ri Son Gwon, said that Pyongyang was asked to speed up nuclear disarmament talks, to which it replied that it was "pushing forward with steps agreed to with the US". Pressure has been mounting on Seoul to play a more active role in mediating between Pyongyang and Washington after denuclearisation talks hit a stalemate following the Trump-Kim summit in Singapore on June 12.

Source: <https://www.straitstimes.com>, 14 August 2018.

NUCLEAR NON-PROLIFERATION

IRAN

Pompeo Forms Iran Action Group for Post-Nuclear Deal Policy

Group will coordinate and run policy towards Tehran, but analysts say the initiative puts US 'on path to war with Iran'. Mike Pompeo, the US secretary of state, has formed a dedicated group to coordinate and run the country's policy towards Iran following President Trump's unilateral

withdrawal from a multinational nuclear deal with Tehran. Pompeo announced the creation of the Iran Action Group (IAG) at a news conference on 16 August, naming Brian Hook, the State Department's director of policy planning, as its head.

"We are committed to a whole of government effort to change the Iranian regime's behaviour and the Iran Action Group will ensure that the Department of State will remain closely synchronised with our interagency partners," he said. "The IAG will also lead the way in growing efforts with nations which share our understanding of the Iranian threat." Speaking to reporters after Pompeo, Hook said Iran's "malign activities" were "wide-ranging" and Washington's new strategy was addressing all manifestations of "the Iranian threat". "The new Iran Action Group will be focused on implementing that strategy," added Hook, who will have the formal title of the Special Representative for Iran.

Pyongyang was asked to speed up nuclear disarmament talks, to which it replied that it was "pushing forward with steps agreed to with the US". Pressure has been mounting on Seoul to play a more active role in mediating between Pyongyang and Washington after denuclearisation talks hit a stalemate following the Trump-Kim summit in Singapore on June 12.

Reactions: Sina Toossi, a research analyst at the Washington-based National Iranian American Council (NIAC), said appointing Hook to head the new policy initiative puts the US "on the path to war with Iran". "Nonetheless, Hook stands to play an instrumental role in facilitating US-Iran diplomacy if President Trump follows through on his call for negotiations," Toossi told.... In late July, Trump, who has repeatedly criticised Iran's leaders, said he is willing to meet with them with no preconditions - even though Pompeo later walked back some of the president's comments. He further said that if the Trump administration was sincere in pursuing talks, it should "reverse course" on its decision to pull out of the 2015 nuclear deal. In a separate statement on social media, NIAC said the programme announced by Pompeo was "another echo" of the lead-up to the 2003 invasion of Iraq, when the George Bush

administration tried to “cherry-pick intelligence and make the case for war”.

Diako Hosseini, a senior analyst at Tehran’s Centre for Strategic Studies, a think-tank close to the Iranian government, said that he doubted that Pompeo was interested in opening negotiations with Iran. “But if this is the first step before entering into any direct talks, it would be constructive if they facilitate in pursuing a realistic approach, to consider Iran’s legitimate concerns...” “I hope this initiative helps the US find a rational way to resolve disputes.”

Earlier on 16 August, Iranian President Rouhani questioned the wisdom of Trump’s decision to withdraw from the nuclear deal. “America took some steps that removed the conditions for talks. They destroyed the bridge themselves, and now they are standing on the other side asking ‘how can I cross?’ Why destroy the bridge when you wanted to walk across?” On 13 August, Iran’s Supreme Leader Ayatollah Ali Khamenei, who has the final say in the country’s most important political decisions, ruled out negotiations with the Trump administration. He said that as demonstrated in the 2015 nuclear deal, Iran will only enter into negotiations in the position of strength “so that US’ pressures and uproars won’t affect us”. “Recently, US officials have been talking blatantly about us. Beside sanctions, they are talking about war and negotiations. In this regard, let me say a few words to the people: there will be no war, nor will we negotiate with the US,” Khamenei said....

Unsuccessful Attempt: Hook led the ultimately unsuccessful attempt of the Trump administration to negotiate changes to the nuclear deal with European allies before the president decided in May to pull out of the landmark accord. Since withdrawing, the administration has re-imposed sanctions that were eased under the landmark

deal and has steadily ramped up pressure on Iran to try to get it to stop what it describes as “malign activities” in the region.

In addition to its nuclear and missile programmes, the US has demanded that Iran scale back its military presence in neighbouring Middle Eastern countries, among other issues. It has also stepped up criticism of Iran’s human rights record and is working with other nations to curb their imports of Iranian oil. The US administration is warning Iran’s oil customers that they will face sanctions in November unless they significantly reduce their imports with an eye on eliminating them entirely. It has also told businesses and

The US administration is warning Iran’s oil customers that they will face sanctions in November unless they significantly reduce their imports with an eye on eliminating them entirely. It has also told businesses and governments in Europe that they may also be subject to penalties if they violate, ignore or attempt to subvert the re-imposed US sanctions.

governments in Europe that they may also be subject to penalties if they violate, ignore or attempt to subvert the re-imposed US sanctions. Tehran has accused the Trump administration of pushing for “regime change” in Iran, deepening distrust. The US has denied the allegations, despite its ties to the Iranian exile group, MEK.

Source: <https://www.aljazeera.com>, 18 August 2018.

NUCLEAR SECURITY

KAZAKHSTAN

“Nuclear” August Calls for Renewed Commitment to Nuclear Security and Disarmament

There are two key dates on the world calendar which symbolise the anti-nuclear movement. Both of them are in August. The first one is Hiroshima Day. It was Aug 6 when the city suffered the world’s first ever nuclear attack and now it has become an eternal symbol of the fight against weapons of mass destruction. The first International Conference for the Prohibition of Atomic and Hydrogen Weapons took place on Aug 6, 1955 in Hiroshima.

The second date is Aug 29, the International Day against Nuclear Tests, approved by the UN on the initiative of President of Kazakhstan Nursultan Nazarbayev. On Aug 29, 1949, the USSR tested its first nuclear weapon, the RDS-1 nuclear bomb at the test site in Semipalatinsk. On the same day in 1991, symbolically, the test site was closed by the decree of President Nazarbayev. Being historically on different sides of the barricades, both Kazakhstan and Japan eventually united in a common aspiration to achieve a nuclear weapon-free world. After all, our states suffered the most from nuclear weapons. Astana and Tokyo support each other in all peace-making initiatives.

In particular, the President of Kazakhstan and the Prime Minister of Japan did a lot for the entry into force of the CTBT, becoming permanent irritants for those countries that continue to think in terms of the Cold War era or cherish nuclear ambitions. The document has already been signed by 183 and ratified by 166 states, but has not yet entered into force, as it needs the endorsement of eight specific so called Annex II states with nuclear capabilities. In particular, the treaty was signed, but not yet ratified, by China, Egypt, Iran, Israel and the US and has not even been signed yet by the DPRK, India and Pakistan. Not all of them implement the provisions of the NPT. At the UN Security Council, the President of Kazakhstan proposed to tighten the provisions on the withdrawal of individual states from its regime (for example, the DPRK withdrew from NPT) At the same time, the Security Council should develop measures of influence on states that do not comply with the non-proliferation regime.

Aug 29, the International Day against Nuclear Tests, approved by the UN on the initiative of President of Kazakhstan Nursultan Nazarbayev. On Aug 29, 1949, the USSR tested its first nuclear weapon, the RDS-1 nuclear bomb at the test site in Semipalatinsk. On the same day in 1991, symbolically, the test site was closed by the decree of President Nazarbayev.

An important step in this direction was the development of a new document – the Treaty on the Prohibition of Nuclear Weapons (TPNW). Kazakhstan took an active part in drafting the document text, which was the result of two sessions of the UN conference held in March and June-July 2017 in New York. The conference was open for the participation of all UN member states. However, nine countries, which possess nuclear weapons de facto and de jure, and their allies remained aloof

from the topical dialogue. Nevertheless, 122 states parties to the NPT voted for the new treaty. The TPNW was opened for signing in September 2017 and it has been already signed by 59 countries, and ratified by 10 so far. (It will enter into force after the 50th ratification.) Apparently, there has been a trend, when the upper hand is no longer gained by countries possessing a nuclear arsenal, but by peaceful states creating new rules of the game. It would be good if it were possible to revive anti-nuclear summits in a new format, which had been initiated by the U.S. Administration, but ceased to be necessary after Barack Obama stepped down as U.S. President.

On the eve of the first summit, held in 2010 in Washington, Izvestia newspaper published Nazarbayev's policy article "The Global Peace and Nuclear Security." In the article, the President clearly identified three vectors of nuclear disarmament. The first is switching from a moratorium on nuclear tests to their complete, absolute and unconditional prohibition. The second is the inalienable right of sovereign states to develop nuclear energy for peaceful purposes. And the third is the steady reduction of the nuclear capacity of all real members of the "nuclear club,"

Apparently, there has been a trend, when the upper hand is no longer gained by countries possessing a nuclear arsenal, but by peaceful states creating new rules of the game. It would be good if it were possible to revive anti-nuclear summits in a new format, which had been initiated by the U.S. Administration, but ceased to be necessary after Barack Obama stepped down as U.S. President.

formal and informal. This article as a whole anticipated the discussions that unfolded on the global dialogue platform. As a result of the summit, the special assistant to Obama on national security issues Michael McFaul said that the head of the White House described Nazarbayev as one of the leaders who should be looked up to in nuclear security matters and said that the summit in Washington would not have taken place “without him.”

The second Nuclear Security Summit took place in Seoul. Presidents and heads of government from 53 countries arrived in The Land of the Morning Calm. Participants sought answers to the main question: why, two decades after the end of the Cold War, do we witness a sad irony – the risk of a nuclear attack, on the contrary, has increased. For example, we are talking about the potential threat of nuclear terrorism. In the world, there are more than 130 reactors using highly enriched uranium. Some of them are in developing countries. Nobody will give an absolute guarantee of the safety of nuclear materials at these facilities. From uranium and plutonium, which are actively used in power engineering, it is possible to create hundreds and thousands of nuclear bombs.

This is the rare case when all countries were unanimous in their desire to reduce the common threat. “The two years that have passed since the meeting in Washington have been full of significant events in the field of global nuclear security. First, in 2011, the NPT Review Conference was held. Second, over two years a large volume of highly enriched uranium has been eliminated in the world. Over 30 states have adopted national commitments in the field of nuclear security. Third, in 2010 the Conference of the Global Initiative to Combat Nuclear Terrorism was held in Astana,” the President of Kazakhstan stressed at that summit. As Nazarbayev noted, our country has ratified the amendments to the Convention on the Physical Protection of Nuclear Material and called

on all participants of the Seoul summit to do so. The call of the Kazakh President was reflected in the final communiqué.

The third summit was unusual. From Washington and Seoul, the global dialogue torch was handed over to The Hague and here for the first time the heads of the participating states played a nuclear conflict simulator game seeking answers to questions such as “How to act in case of a nuclear attack?” and “What are the threats?” The forum, which is characteristic, was held behind closed doors. The broadcast was stopped on the initiative of the organisers a few minutes after the start. But there was not a lack of information. In particular, the heads of state were invited to make video messages, which were broadcast on the

The question is how to combine the desire of many countries to develop peaceful nuclear energy and at the same time, to limit access to nuclear material for a bomb. One of the solutions designed to reduce the risk to a minimum is to phase out the use of HEU from the nuclear industry.

margins of the summit. Special attention was paid to the video message of the head of our state, which in a concise, concentrated form revealed the problems of the day and ways to overcome modern threats. Summarising, we can define several topics on

which the President of Kazakhstan has focused.

First, Nazarbayev emphasised that the antiterrorist campaign should not limit the right of states to peaceful nuclear programmes, exchange of technology and equipment, knowledge and experience. But the question is how to combine the desire of many countries to develop peaceful nuclear energy and at the same time, to limit access to nuclear material for a bomb. One of the solutions designed to reduce the risk to a minimum is to phase out the use of HEU from the nuclear industry. “So that every state would not have to enrich uranium for nuclear power plants, we proposed to create a bank of low-enriched nuclear fuel in Kazakhstan. It could provide safe, low-enriched uranium for nuclear power plants,” stressed the head of state.

The second key aspect highlighted by the President is nuclear non-proliferation. It is important to show that the security system is based not on the power

of nuclear weapons, but on peaceful dialogue and cooperation. Only this approach can stop the uncontrolled expansion of the nuclear club. Otherwise, the crisis of confidence will only grow. Indeed, the legitimate nuclear powers include only five states – China, France, Russia, the United Kingdom and the United States. However, several other states possess them de facto and this causes additional problems. In fact, the informal members of the nuclear club are not actually covered by the NPT. “The Treaty on the Non-Proliferation of Nuclear Weapons is violated and no sanctions are taken.... We should have a method of enforcement. If the international rules are not followed, the states should be punished. But there are no strict rules,” said the Kazakh head of state.

The fourth and final Nuclear Security Summit again took place on the banks of the Potomac. The agenda was still the same – nuclear terrorism, disarmament and the nuclear ambitions of North Korea, as well as overall increased conflicts in international affairs. “Today, the use of weapons of mass destruction by terrorists becomes a reality, demanding concrete actions from the world leaders. There is a need to create a global network against terrorism with the participation of all countries under the auspices of the UN. We need to take into account virtually everyone. We need to ensure total control over every human being and fight [against terrorism]. This is the only way we can win in this undeclared war,” said Nazarbayev at the summit. In this context, alarming statistics of the IAEA draws a rather bleak picture: from 1993-2014, there were more than 1,000 cases of loss, theft and illicit trafficking of nuclear and radioactive materials.

By the way, the efforts of Kazakhstan and the IAEA helped to solve one of the major dilemmas in the development of nuclear energy. The creation of the IAEA low enriched uranium fuel bank was

named one of the most important achievements of the summit, which was reflected in the joint statement of the leaders of the states participating in the global forum. In parallel with the main event, Washington hosted the Nuclear Industry Summit. For the first time, that forum established an international award for contribution to the development of anti-nuclear initiatives. Kazakhstan was the first country to receive it. Security today has global significance. It could not be viewed through the prism of the boundaries of a single state. Only united efforts can produce a synergetic effect of a breakthrough. That is why

it’s quite natural to ask the question: what has been achieved in the eight years since the beginning of the global dialogue?

The results are as follows. Participating states undertook more than 260 specific commitments on the establishment of nuclear security and almost three-quarters of these commitments have been fulfilled. More than a dozen countries have removed highly enriched uranium and plutonium. Over 100 states have ratified the Convention on the Physical Protection of Nuclear Material. However, there is another question: what is next?

countries have removed highly enriched uranium and plutonium. Over 100 states have ratified the Convention on the Physical Protection of Nuclear Material. However, there is another question: what is next? Should we continue the dialogue? Kazakhstan, for example, is ready to update the global Nuclear Security Summit, holding it in Astana. The main thing is to be united and persuade to cooperate those who are not very committed to it.... Practice shows, if there is a will, all goals are achievable.

Source: <https://astanatimes.com>, 22 August 2018.

NUCLEAR WASTE MANAGEMENT

CHINA–FINLAND

Finnish Firms Join Forces for Safe Management of Chinese Radioactive Waste

Finnish companies Fortum and AINS Group have signed a MoU for the safe management

of radioactive nuclear waste in China. The nuclear industry in China is rapidly expanding, with 20 new reactors expected to be added to the existing fleet of 38 reactors by 2020. The firms claim Finnish nuclear power plant operators were one of the first in the world to construct the final repository for spent nuclear fuel and run the underground disposal facilities for low and intermediate waste since 1990's. Fortum owns and operates a nuclear plant in Loviisa, about 80 kilometres east of Helsinki, with its own underground disposal facility for radioactive waste – AINS Group helped with the design.

Dr Jari Tuunanen, Head of Nuclear Waste at Fortum said: "At Loviisa, low and intermediate level waste (LILW) from normal plant operations

and plant decommissioning is processed and disposed of at the nuclear power plant site by Fortum's personnel. "This minimises the need for transportation of the waste and makes it possible for us to optimise the LILW management from generation to the disposal." The agreement also enhances co-operation between other organisations in Finland, including VTT and Posiva Solutions. In July, MPs on the Business, Energy and Industrial Strategy (BEIS) Committee backed government proposals to store radioactive nuclear waste under national parks and areas of outstanding natural beauty (AONBs) in the UK.

Source: <https://www.energylivenews.com>, 22 August 2018.



Centre for Air Power Studies

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

Centre for Air Power Studies

P-284

Arjan Path, Subroto Park,
New Delhi - 110010

Tel.: +91 - 11 - 25699131/32

Fax: +91 - 11 - 25682533

Email: capsnetdroff@gmail.com

Website: www.capsindia.org

Edited by: Director General, CAPS

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

Composed by: CAPS

Disclaimer: Information and data included in this newsletter is for educational non-commercial purposes only and has been carefully adapted, excerpted or edited from sources deemed reliable and accurate at the time of preparation. The Centre does not accept any liability for error therein. All copyrighted material belongs to respective owners and is provided only for purposes of wider dissemination.