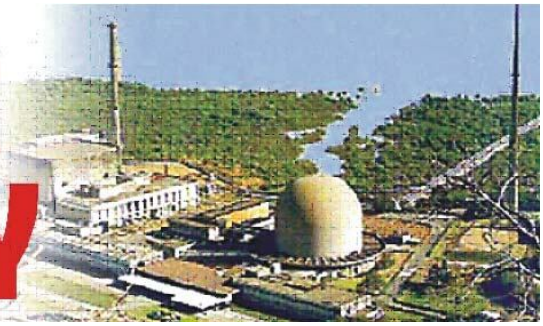
NUCLEAR SECURITY



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

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OPINION – David E. Sanger

How North Korea is Mimicking Pak Model to Normalise its Nuclear Presence

Kim's strategy now appears to be simple: Mimic Pakistan, which conducted a major nuclear test in 1998 and deflected demands for years that it gives up its weapons. For seven years, Kim Jong Un has pursued an in-your-face strategy for building his nuclear arsenal: detonating blasts underground and firing missiles into the sky, all to send the message that his country's nuclear build-up is irreversible. Now he appears to be changing his approach, current and former U.S. intelligence officials say, tailoring it to his reading of the man he met for a few hours three months ago in Singapore: President Trump.

North Korea is making nuclear fuel and building weapons as actively as ever, the publicly available evidence suggests. But he now appears to be borrowing a page from Israel, Pakistan and India: He is keeping quiet about it, conducting no public nuclear demonstrations and creating no crises, allowing Trump to portray a denuclearization effort as on track. Kim's new forbearance has helped keep a stream of warm words coming from Trump.

A week ago, the president praised Kim, with whom he says he has forged a special relationship, after the North Korean leader refrained from parading missiles down the streets of Pyongyang during a military celebration.

... Looming over the meeting is the post-Singapore stalemate on progress despite Trump's new tone of accommodation, including his openness to a second meeting with Kim. After declaring a year ago that Kim had to disarm quickly or face "fire and fury," Trump now says there is plenty of time.

But even some of the president's top national security officials privately concede that Trump's declaration in June 2018 that "there is no longer a nuclear threat" from North Korea was a huge

North Korea is making nuclear fuel and building weapons as actively as ever, the publicly available evidence suggests. But he now appears to be borrowing a page from Israel, Pakistan and India: He is keeping quiet about it, conducting no public nuclear demonstrations and creating no crises, allowing Trump to portray a denuclearization effort as on track.

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error, because it was taken as a signal by China and Russia that the crisis was over and that they could resume trading with the country. Current and former intelligence officials say new assessments suggest that Kim has carefully read Trump and concluded that as long as the optics are good, and the exchanges between the two leaders are warm, he can hold off demands for progress toward disarmament. If Kim does not conduct tests, Trump is unlikely to call out evidence of a continued nuclear buildup. "I'm shocked at how superficial things have been," said Jung, the CIA's mission leader for North Korea until she left last year for the Brookings Institution. "I think the North Koreans smell dysfunction and they see dysfunction in the president's tweets and his compliments and his willingness to meet again."

Even one of Trump's frequent defenders, Sen. Graham of South Carolina, indicated he was worried that the president might have been manipulated. "Are they playing us? I don't know," Graham said on CBS' "Face the Nation." "If they're playing Trump, we're going to be in a world of hurt, because he's going to have no options left. This is the last, best chance for peace right here." The White House argues that significant progress has been made. Trump's press secretary, Sanders, has cited the fact that Kim's last missile and nuclear tests were 10 months ago, and insisted that is a sign of Kim's willingness to deal. It certainly is a constraint on his program: As long as the North conducts no tests, it cannot demonstrate that it has designed a warhead that can survive the huge stresses it would undergo in flight. That leaves ambiguity about whether it can actually strike U.S. cities.

Still, nuclear production continues unabated, satellite photographs and other evidence suggest. Secretary of State Pompeo has not persuaded the North Koreans to turn over an inventory of their major nuclear facilities and materials, much less declare how many weapons they possess. While Kim has blown up entrances to a nuclear test site and appeared to start dismantling a test stand for missile engines, he has not allowed in any inspectors to determine whether the actions were simply for show.

Kim has said a peace "declaration" that formally ends the Korean War must be a first step, and Moon has privately urged the United States to provide that assurance. The North Korean leader believes that Trump committed to such a declaration on the way to a more formal peace treaty.

Kim has said a peace "declaration" that formally ends the Korean War must be a first step, and Moon has privately urged the United States to provide that assurance. The North Korean leader believes that Trump committed to such a declaration on the way to a more formal peace treaty. But both Pompeo and Bolton, the national security adviser, have said progress toward denuclearization must come first.

Kim's strategy now appears to be simple: Mimic Pakistan, which conducted a major nuclear test in 1998 and deflected demands for years that it give up its weapons. Pakistan has largely succeeded. It has a substantial arsenal, and when Pompeo visited Islamabad recently, there was little public discussion of Pakistan's nuclear arsenal. "Kim understands what has protected the Pakistanis," said Burns, the undersecretary of state for political affairs during the George W. Bush administration. "As long as you have a circle of countries who will recognize you, and will trade with you, it is very difficult for the U.S. to succeed in getting the country to dismantle its nuclear weapons apparatus. Trump had strong international sanctions leverage over Kim but squandered it at Singapore."

As long as you have a circle of countries who will recognize you, and will trade with you, it is very difficult for the U.S. to succeed in getting the country to dismantle its nuclear weapons apparatus. Trump had strong international sanctions leverage over Kim but squandered it at Singapore.

The appeal of the Pakistan model is clear. Pakistan

suffers few sanctions for its nuclear program, or its refusal to sign the NPT. It has not tested a weapon in 20 years; like North Korea, it has concluded that it has already proved its basic capabilities. The same is true for India and Israel, the other nonsignatories of the treaty. North Korea has taken advantage of the situation to step up trade with China and Russia, in violation of U.N. resolutions. On September 14, 2018, the U.S. ambassador to the UN, Haley, accused the Russians of trying to alter a draft U.N. report that documents the sanctions violations, and said the experts writing the report had "caved." The United States has "called an urgent UNSC meeting for September 17, 2018 at 10 a.m. to discuss the implementation and enforcement of U.N. sanctions on North Korea," according to a statement from Haley's office. But she has little leverage. As long as Trump declares that the crisis is over, China and Russia will look to maintain the status quo.

A senior intelligence official said recently that the North Koreans are listening selectively: They focus on Trump's enthusiastic reassurances to Kim, like his tweet on August 02, 2018 "Thank you for your nice letter — I look forward to seeing you soon!" Whether they do see each other soon depends largely on the initiatives of Moon, the South Korean president, during his trip to Pyongyang. He has emerged as the most important actor in this nuclear dance, and he sees his role less as a U.S. ally and more as a critical intermediary. He is concerned, one senior South Korean official said, that if Trump loses the House or feels more pressure from the special counsel investigation, he may veer toward resuming threats of military action.

So when Moon met with his Cabinet on September 11, 2018, he did not talk of "complete, verifiable, irreversible denuclearization," which used to be how the Trump administration described the goal of talks with North Korea. Instead, he talked about greasing the diplomatic gears. "What the South and North now needs is not just another joint declaration, but finding ways to substantially develop relations," he said. "We cannot cease our efforts to mediate and facilitate talks from the middle until dialogue and communication between North Korea and the United States flow smoothly." other nuclear concerns.

Source: https:// economictimes.indiatimes.com, 17 September 2018.

OPINION – Hyonhee Shin, et al.

Why Nuclear Disclosure is Key First Step in North Korea's Denuclearization

New pledges made by North Korean leader Kim to curb his nuclear weapons program may have opened the door to further talks with Washington, but just how much impact would they have on the North's nuclear arsenal? At the summit with South Korea's President Moon, Kim promised to allow outside inspections on key missile facilities, and expressed a willingness, for the first time, to "permanently" scrap North Korea's main nuclear complex. While these are positive first steps, experts say they would do little to damage the country's larger nuclear and missile capabilities, nor demonstrate whether Kim is serious about giving up his nuclear arsenal. The agreement by Kim and Moon also does not stipulate any plans by North Korea to declare a list of its nuclear weapons, facilities and materials, or a concrete timeline for denuclearization. With U.S. Secretary of State Pompeo expected to meet his North Korean counterpart Ho to restart nuclear talks as soon as on the sidelines of the UNGA, here is a summary of Pyongyang's nuclear and missile capabilities at stake.

Kim promised to allow outside inspections on key missile facilities, and expressed a willingness, for the first time, to "permanently" scrap North Korea's main nuclear complex. While these are positive first steps, experts say they would do little to damage the country's larger nuclear and missile capabilities, nor demonstrate whether Kim is serious about giving up his nuclear arsenal.

***Yongbyon*:** In the joint statement, the North expressed its willingness to "permanently

dismantle" the Yongbyon nuclear complex if the US takes corresponding action. Moon said this would include a declaration of an official end to the 1950-53 Korean War. A sprawling complex located about 100 km (60 miles) north of the capital, Yongbyon is the country's main nuclear facility and the birthplace of its nuclear programs. Built in the late 1950s with Soviet aid, it houses at least three reactors, fissile materials, fuel re-processing plants and a multitude of research labs, according to the NTI, a Washington-based think tank. An operational five-megawatt reactor there produces weapons-grade plutonium, while there is also a facility to produce HEU, also used to make atomic bombs, experts say.

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Dismantling Yongbyon would slow the production of fissile material, but not reduce the current stockpile of plutonium and HEU, nor clear suspicions of other secret production sites, says Pollack, a North Korea missile expert at the Middlebury Institute of International Studies in California. "Yongbyon is where all of North Korea's plutonium production has taken place, so this step would effectively cap their stockpile of plutonium," Pollack said. "Unfortunately, it would neither reduce their current plutonium stockpile nor address the production of highly enriched uranium, which most experts believe happens both at Yongbyon and at one or more other sites."

The North has also been moving toward solid-fuel missiles that can be fired from harder-to-detect mobile launchers, making a fixed stand increasingly unnecessary. There is also at least one other operational missile launch station, Tonghae or Musudan-ri in the northeast, though it has not been used since 2009.

North Korea has denied the existence of other secret sites, but U.S. media reports, citing intelligence sources, said in recent months the North has been running at least one covert uranium enrichment facility just outside of Pyongyang, known as the Kangson enrichment site. "But there is still value in being able to verifiably shut down the known facilities with a negotiated mechanism for inspecting suspected sites," said Jenny, managing editor of the Washington-based Stimson Centre's 38 North project, which provides satellite imagery analyses of the North's weapons facilities.

***Tongchang-ri*:** North Korea also said it will "permanently dismantle" its missile engine testing site and launch platform in the northwestern town of Tongchang-ri in the presence of experts from "concerned countries". Also known as the Sohae satellite launching station, this site has been the country's primary site for rocket launches since 2012. It is where the North last year test-fired ICBM designed to reach the U.S. mainland. The facility consists of a missile assembly building, a launch pad with a gantry and mobile launch platform, fuel and oxidizer storage, a rocket engine test stand and an instrumentation stand, according to NTI.

In July 2018, after the Singapore summit between Kim and Trump, satellite imagery indicated the North has begun dismantling the engine test site in Tongchang-ri, but without allowing outsiders access for verification. While it has served as a key test center for liquid fuel engines designed for long-range missiles and played an important role in the country's ICBM development, Sohae's importance may be diminishing, experts say. Pyongyang, having declared its newest ICBM complete in November 2017, has called for mass production to begin.

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it has not been used since 2009. "Neither that engine test site nor launch platform would be U.S. priorities," said Lee, head of North Korea military studies at the Korea Institute for Defence Analyses in Seoul. "Maybe a political message to the United States, but that would hardly make meaningful steps toward denuclearization."

***Existing Nuclear Stockpile*:** Estimates on how many nuclear weapons North Korea vary. U.S. intelligence officials have put it at between 30 and 60 warheads, while South Korea's intelligence agency said in August the North may have as many as 100 warheads. 38 North, which estimates North Korea has 50-60 nuclear warheads, said in 2017 the operational Yongbyon reactor is capable of producing around 6 kg of plutonium every year, enough to make about two bombs. The suspected continuation of production makes it an urgent task to get Pyongyang to first freeze nuclear and missile production, as well as convince it to declare all related facilities for verification, experts say. "How far the North would go to disclose its facilities would be key," said Kim Dae-young, a military analyst at the Korea Research Institute for National Strategy in Seoul. "Though it may be implausible to rid them completely of nuclear capabilities, it's crucial to make it impossible for them to build the bombs again, including through regular inspections."

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Source: https://www.reuters.com, 23 September 2018.

OPINION – ***Sebastien Roblin***

A Key Missile Treaty between Russia and America is Dying a Slow Death

One of the arms-control treaties that is little understood is the INF treaty signed by the Soviet Union and United States in 1987, which was later modified to incorporate Russia, Belarus, Ukraine and Kazakhstan. Actually, this treaty not only banned IRBMs—but also many short-range types and ground-based cruise missiles. But why get excited about banning the shorter-range weapons when the heavier missiles are still capable of laying waste to nations? Most discussion of nuclear missiles focus on the huge ICBMs, which are stored in fixed underground silos and can travel across oceans to hit targets across the globe. Modern ICBMs carry multiple independent warheads to lower the probability of interception and rain destruction on multiple targets with one rocket. It must be stressed that even a strike by even a modest number of ICBMs would kill millions and reduce any nation to an irradiated ruin.

One the opposite end of the spectrum, there are highly mobile and concealable, Tactical or Short-Range ballistic missiles mounted on trucks with a range measured in the low hundreds of miles and much smaller nuclear warheads. While even those could wreck the day of any city it landed on if it happened to be within range, these systems are primarily intended for targeting opposing military targets such as air bases, fuel dumps and missile sites. Because of they are mobile and can be fired quickly, they are surprisingly difficult to track and destroy. Obviously, intermediate or medium-range missile fall in between, with a range in the "low" thousands of miles—but most importantly they are likely to possess the heavier, city-destroying warheads approaching the size of those in an ICBM as well as the mobility and fast launch time of short-range systems.

The INF treaty signed by the Soviet Union and United States in 1987, which was later modified to incorporate Russia, Belarus, Ukraine and Kazakhstan. Actually, this treaty not only banned IRBMs—but also many short-range types and ground-based cruise missiles.

During the 1970s, NATO was spooked by the Soviet Union's development of the RSD-10 "Pioneer" (designated by NATO the SS-20 Saber),

each of which could deploy three 120-kiloton warheads on targets up to three to five thousand miles away depending on model. Unlike its liquid-fuel predecessors, the SS-20 used solid fuel, meaning it could be fired on short notice because it did not have to be gassed up prior to launch. It also possessed a high enough degree of accuracy that it could be used take out hardened military targets, such as NATO's own tactical nuclear forces. So, in addition to the apocalyptic city-destroying ICBMs to deter attack, the Soviet Union appeared to have an effective weapon for defeating NATO's ground armies, and their tactical nukes, without resorting to strategic nuclear warfare.

A ballistic missile, which shoots up into space in an arc traveling while many times the speed of sound, smaller cruise missiles skim low over the surface of the planet, are more capable of course corrections and are more precise.

At a 1979 conference in Brussels, the NATO countries decided to retaliate by deploying over a hundred new Pershing II IRBMs to Europe, and four hundred nuclear-tipped variants of the Tomahawk ground-launched cruise missile (GLCMS). Unlike a ballistic missile, which shoots up into space in an arc traveling while many times the speed of sound, smaller cruise missiles skim low over the surface of the planet, are more capable of course corrections and are more precise. Furthermore, most long-range cruise missiles like the Tomahawk, travel no faster than an airliner. Thus, both Washington and Moscow were left feeling increasingly discomfited from having to engage in a new middle-tier nuclear arms race and the buildup of apocalyptic weapons in Europe that could be launched on such short notice that escalation to nuclear warfare could happen before either side understood what was happening. It seemed not enough that both powers already possessed the long-range missiles to reduce each other's civilizations to radioactive ashes, it seemed they were doomed to invest fortunes in replicating that ability many times over with the shorter-range missiles.

The new policy had a sweeping effect: by June 1991, nearly 2,700 nuclear weapons had been destroyed, and several entire classes of weapons vanished entirely from Russian and American arsenals.

Between 1981 through 1983, Moscow and Washington tried to work out an agreement to mutually cut back on the intermediate-range weaponry in the early 1980s, but the United States was unwilling to cancel deployment of the new weapons it intended to achieve parity with Soviet IRBMs, and compromise was complicated by the fact the SS-20 remained relatively more effective than the more numerous Western GLCMs. However, when Mikhail Gorbachev took office in 1985 he was open to a more ambitious agreement. With significant assistance from Thatcher and later Kohl, President Reagan and Gorbachev finally met in a decisive summit in Reykjavik in October 1986 and agreed in theory to institute a total ban on ground-launched ballistic missiles and cruise missiles with a range between 310 to 3,410 miles—to be verified by giving inspectors access to each other's arsenals. The treaty was finally signed in December 1987.

The new policy had a sweeping effect: by June 1991, nearly 2,700 nuclear weapons had been destroyed, and several entire classes of weapons vanished entirely from Russian and American arsenals. Nonetheless, it's also important to understand which types of weapons were not affected by the INF. "Tactical" ballistic missiles like the Scud or Tochka, with a range under three hundred miles remained unregulated. So were air-launched cruise missiles, such as the AGM-86s carried by the B-52, and sea-launched cruise missiles like the Tomahawks carried by U.S. missile destroyers, cruisers and Ohio-class SSGN submarines. Arguably the most unstoppable form of nuclear attack, submarine-launched ballistic missiles, were unaffected.

Basically, the INF treaty helped remove a class of weapon that made rapid escalation into nuclear conflict more likely, but didn't change the fact that

nuclear conflict would lead to mutual annihilation. The INF treaty also didn't apply to countries other than the U.S. and Soviet successor states. France and the UK, which both maintain a few hundred nukes, were also unaffected. China's small nuclear arsenal today still consists mostly of IRBMs, as its chief potential adversaries are well within their striking range.

The INF treaty has nonetheless saved the United States and Russia millions of dollars of military spending in the last three decades on developing redundant nuclear-apocalypse generating weapons. Though the treaty is obviously endangered by a rising tide of violations and loophole exploiting, one should hope its total collapse can be avoided.

However, in the last decade Moscow has increasingly begun to complain about the INF treaty—and explored loopholes to get around it. In 2007, Putin declared the INF treaty was no longer in Russia's interest. One complaint is of course that China isn't bound by it, and probably wouldn't be interested in joining in. This is less vexing for the U.S. because North America doesn't lie within IRBM range of China, but Russia shares a border with China—though Russian IRBMs would also be useful against Europe. Moscow has dubiously alleged that Washington is violating the treaty with claims that armed drones should really count as cruise missiles (though a nuclear payload is certainly possible, none of appear to be so configured), or that a ground-based missile-defense system designed to protect against Russian missiles is in violation because its Mark 41 Vertical Launch System was originally designed to carry Tomahawks on U.S. ships.

The 2-degree Celsius scenario of the Paris Agreement will require vast amounts of clean energy amid growing global demand. This means a lot of new capacity—and it seems that solar, wind, and biomass will be unable to shoulder the additional burden in its entirety.

By 2017, the United States had intelligence that Russian Iskander tactical ballistic missile systems had been modified to launch 9M729 (NATO codename SS-CX-8) submarine-launched cruise missiles, violating the INF treaty. Meanwhile, the U.S. Army has talked about modifying its multiple-rocket launcher artillery system to launch missiles with ranges over three hundred miles that may also violate the treaty. Methods for circumventing the treaty, like floating ground-based missiles on barges so they no longer "count" have also been widely discussed.

The INF treaty has nonetheless saved the United States and Russia millions of dollars of military spending in the last three decades on developing redundant nuclear-apocalypse generating weapons. Though the treaty is obviously endangered by a rising tide of violations and loophole exploiting, one should hope its total collapse can be avoided so to spare everybody yet another expensive form of nuclear-arms race.

Source: https:// nationalinterest.org, 22 September 2018.

OPINION – *Irina Slav*

Nuclear Power could be Key in Reaching Climate Goals Nuclear power could contribute to achieving the Paris Agreement targets on climate change, but it would need help of its own to do that, a new report from the IAEA said. The 2-degree Celsius scenario of the Paris Agreement will require vast amounts of clean energy amid growing global demand. This means a lot of new capacity—and it seems that solar, wind, and biomass will be unable to shoulder the additional burden in its entirety. Nuclear could help: it is a low-emission energy source, and were it not for the radioactive waste, it would have been the perfect energy source. Still, even with the radioactive waste, "If nuclear power deployment doesn't expand in line with this scenario, the other technologies may not fill the gap—and we may not meet our climate targets," according to IAEA's Deputy Director General, Chudakov.

Nuclear is a sensitive topic at best. It is a major target of those environmentalist groups whose attitude to nuclear energy is the same as it is to fossil fuels: they are best kept in the ground. However, this attitude is rather reductive. If fossil fuels—and uranium—are to be kept in the ground, there need to be alternatives, and there are not enough alternatives as of now. So in the end, the choice might come down to fossil fuels or uranium. It is not a choice that many would want to make. Fossil fuels are cheap, but high in emissions. Nuclear has its drawbacks too; it is getting increasingly expensive because of the tightening safety standards. This is a serious problem for nuclear's future contribution to low-emission energy production, the IAEA notes in its report.

The choice might come down to fossil fuels or uranium. It is not a choice that many would want to make. Fossil fuels are cheap, but high in emissions. Nuclear has its drawbacks too; it is getting increasingly expensive because of the tightening safety standards.

The industry is addressing this problem by building more waste repositories and improving its safety mechanisms, as well as by designing reactors with lower waste production levels and "reactors with alternative cost models". Yet the challenge remains as many nuclear plants are being closed because they have reached the end of their productive lives. More than 50 percent of reactors, the IAEA said in another recent report, are already scheduled for retirement in the coming years. This, coupled with the high costs and the competition from cheap natural gas and increasingly cheaper solar and wind, would hinder the expansion of nuclear generating capacity. Skeptics might not buy the argument that nuclear is essential for the global shift towards cleaner energy generation, but proponents of the technology defend it as indispensable especially in the context of rapidly growing electricity demand.

Coupled with the high costs and the competition from cheap natural gas and increasingly cheaper solar and wind, would hinder the expansion of nuclear generating capacity. Skeptics might not buy the argument that nuclear is essential for the global shift towards cleaner energy generation, but proponents of the technology defend it as indispensable especially in the context of rapidly growing electricity demand.

The IAEA cites data from the International Energy Agency, which suggests that nuclear proponents may be right: to date, 70 percent of global power generation comes from fossil fuels. If we are to meet the Paris Agreement climate goals for 2050, 80 percent of the electricity the world produces by that year needs to come from clean sources. Given the need for storage that must accompany solar and wind, only the most extreme renewables optimists would agree that this shift from 30 percent to 80 percent is possible through solar, wind, and biomass alone. After all, hydropower, which accounts for a substantial chunk of global renewable capacity, has its limits, as well. Nuclear might indeed be indispensable as a means of achieving the Paris Agreement climate goals, despite the waste danger.

Source: *https:// oilprice.com, 19 September 2018.*

OPINION – Beatrice Fihn

Canada's Feminist Foreign Policy cannot Include Nuclear Weapons

"Women's rights are human rights," Hillary Clinton famously said in 1995. Canada's Minister of Foreign Affairs, Chrystia Freeland repeated those words in her message announcing Canada's Feminist International Assistance Policy. Prime Minister Justin Trudeau has made women's empowerment a pillar of his government from his gender-balanced cabinet to the push for a "feminist foreign policy."

That feminist focus was on display as Ms. Freeland invited other female foreign ministers to a summit in Montreal along with a small group of female civil-society leaders. I was honoured to be invited to address that formidable gathering.

As the doors closed on that room, full of some of the most powerful women in the world, it struck me that this was the only high-level gathering I've attended where the men – largely staff and aides – waited outside while women made decisions. The discussion inside was not limited to traditional "women's issues," but was an in-depth and insightful dialogue about the great foreign-policy challenges of our time, and I was grateful for Ms. Freeland's initiative in organizing and hosting.

Canada's antiquated and patriarchal policies remain when it comes to the most cataclysmic weapon of mass destruction created by man – nuclear weapons.Nuclear weapons are indiscriminate weapons of mass killing that were created specifically to target cities and civilians, and disproportionately affect women. They are inhumane and against the principles of international human-rights laws.

Yet, in stark contrast to that leadership, Canada's antiquated and patriarchal policies remain when it comes to the most cataclysmic weapon of mass destruction created by man – nuclear weapons.

Nuclear weapons are indiscriminate weapons of mass killing that were created specifically to target cities and civilians, and disproportionately affect women. They are inhumane and against the principles of international human-rights laws.

A foreign policy that respects human rights must work to eliminate and legally ban such weapons. A foreign policy that promotes women's rights must recognize that the testing and use of nuclear weapons specifically harms women, who are more acutely affected by nuclear fallout than men.

Fear of nuclear weapons and their proliferation is now one of the top causes of concern on international issues for Canadians, according to Canada's World Survey 2018, a 9-percentage-point increase over the past decade. Instead of working to ban and abolish nuclear weapons, Canada continues to support its nuclear allies and their efforts to develop new nuclear weapons meant to last for decades.

Women in Hiroshima and Nagasaki had nearly double the risk of developing and dying from solid cancer due to ionizing radiation exposure. Robust findings from Chernobyl indicate that girls are considerably more likely than boys to develop thyroid cancer from nuclear fallout. Pregnant women exposed to nuclear radiation face a greater likelihood of delivering children with physical malformations and stillbirths, leading to increased maternal mortality. And these effects last generations. Near the infamous Semipalatinsk-21 nuclear testing site in Kazakhstan, one in every 20 babies is born with serious deformities.

Although nuclear weapons are indiscriminate, their impact is not. These archaic weapons promote an outdated global order rooted in inequality and oppressive patriarchy. The existence and threatened use of these weapons are an affront to women's rights that put women's empowerment in peril.

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In the leadership gap, other states are stepping forward. One hundred and twenty-two nations adopted the Treaty on the Prohibition of Nuclear Weapons last year at the UN. Mr. Trudeau's government did not participate in the process and the Prime Minister even remarked that the treaty was "sort of useless."

Dozens of other countries have signed or ratified the treaty in the past year. Canada will not be present as several more states sign and ratify the treaty at the UN. Ms. Freeland should follow their

strong feminist example and stand up for women everywhere by supporting the treaty. That is the type of feminist foreign policy women of the world need to bring all of us back from the brink of nuclear devastation.

Canadians and their leaders must make a decision: Will they stand on the right side of history in banning these atrocious weapons, as they have with other inhumane weapons? Or, will Canada's feminist foreign policy speak of progress while remaining rooted in a violation of human rights – of women's rights? That kind of leadership is, well, sort of useless.

Source: https://www.theglobeandmail.com, 28 September 2018.

NUCLEAR STRATEGY

ISRAEL

Israel could have as Many as 300 Nuclear Weapons

Israel has never officially admitted to possessing nuclear weapons. Unofficially, Tel Aviv wants everyone to know it has them, and doesn't hesitate to make thinly-veiled references to its willingness to use them if confronted by an existential threat. Estimates on the size of Tel Aviv's nuclear stockpile range from 80 to 300 nuclear weapons, the latter number exceeding China's arsenal.

During the 1991 Gulf War, it emerged that German scientists and firms had played a role in dispersing ballistic missile and chemical weapons technology to various Arab governments—technology which aided Saddam Hussein in bombarding Israel with Scud missiles.

Originally, Israel's nuclear forces relied on air-dropped nuclear bombs and Jericho ballistic missiles. For example, when Egyptian and Syrian armies attacked Israel during the 1973 Yom Kippur War, a squadron of eight Israeli F-4 Phantom jets loaded with nuclear bombs was placed on alert by Prime Minister Golda Meir, ready to unleash nuclear bombs on Cairo and Damascus should the Arab armies break through.

Though Israel is the only nuclear-armed state in the Middle East, Tel Aviv is preoccupied by the fear that an adversary might one day attempt a first strike to destroy its nuclear missiles and strike planes on the ground before they can retaliate. Currently, the only hostile states likely to acquire such a capability are Iran or Syria.

Israeli has aggressively targeted missile and nuclear technology programs in Iraq, Syria and Iran with air raids, sabotage and assassination campaigns . However, it also has developed a second-strike capability—that is, a survivable weapon which promises certain nuclear retaliation no matter how effective an enemy's first strike.

To forestall such a strategy, Israeli has aggressively targeted missile and nuclear technology programs in Iraq, Syria and Iran with air raids, sabotage and assassination campaigns . However, it also has developed a second-strike capability—that is, a survivable weapon which promises certain nuclear retaliation no matter how effective an enemy's first strike.

Most nuclear powers operate nuclear-powered ballistic missile submarines which can spend months quietly submerged deep underwater and at any moment unleash ocean-spanning ballistic missiles to rain apocalyptic destruction on an adversary's major centers. Because there's little chance of finding all of these subs before they fire, they serve as one hell of a disincentive to even think about a first strike.

But nuclear-powered submarines and SLBMs are prohibitively expensive for a country with the population of New Jersey—so Israeli found a more affordable alternative. During the 1991 Gulf War, it emerged that German scientists and firms had played a role in dispersing ballistic missile and chemical weapons technology to various Arab governments—technology which aided Saddam Hussein in bombarding Israel with Scud missiles . This in fact was long-running sore point: in the

early 1960s, Israeli agents even carried out assassination attempts, kidnappings and bombings targeting German weapons scientists working on behalf of Arab governments.

Chancellor Helmut Kohl hatched a plan to simultaneously compensate Israel for the damages, while generating business for German shipbuilders suffering a downturn due to post-Cold War defense cuts. Starting in the 1970s, German shipbuilder HDW began churning Type 209 diesel electric submarines for export, with nearly 60 still operational around the globe. One Type 209, the San Luis, managed to ambush Royal Navy vessels twice during the Falkland War, though it failed to sink any ship due to the defective torpedoes.

Source: Sebastien Roblin, https://nationalinterest.org, 26 September 2018.

BALLISTIC MISSILE DEFENCE

INDIA

India Successfully Test Fires Short-range Tactical Ballistic Missile Prahaar

Amidst downpour, India successfully test-fired surface-to-surface short-range tactical ballistic missile Prahaar from a defence facility off Odisha coast on September 20, 2018 paving the way for its induction. Mounted on a mobile launcher the indigenously developed missile was flight tested from the launching complex-III of the Integrated Test Range at about 1.35 pm. "The missile blasted off from a canister travelled the desired range before zeroing on the target. All systems functioned normally. The mission achieved a copybook success," said a defence official. Equipped with state of the art navigation, guidance and electromechanical actuation systems with the latest onboard computer, the missile achieved the terminal accuracy of fewer than 10 meters. It went up vertically and then manoeuvred as coordinated.

Having a strike range of 150 km, Prahaar has no parallel in the world in its range category. It fills the vital gap between multi-barrel rocket Pinaka and medium-range ballistic missile Prithvi. Unlike Prithvi, it can engage multiple targets in different directions. The missile capable of carrying different types of warheads will operate as battlefield support system to the Indian Army.

"The missile was launched from a road-mobile launcher, which can carry six missiles at a time and can be fired in salvo mode in all directions covering the entire azimuth plane. There was not a single degree deviation during the entire flight path," the official told *The New Indian Express*. Having a strike range of 150 km, Prahaar has no parallel in the world in its range category. It fills the vital gap between multi-barrel rocket Pinaka and medium-range ballistic missile Prithvi. Unlike Prithvi, it can engage multiple targets in different directions. The missile capable of carrying different types of warheads will operate as battlefield support system to the Indian Army. It has a greater manoeuvring capability, acceleration and can be deployed in different kinds of terrain making it more effective against strategic targets.

Fuelled by solid propellant Prahaar missile is about 7.32 meter long and its diameter is 420 mm. While its launch weight is about 1.28 tonne, it can carry a payload of 200 kg. The missile system is developed to provide the Indian Army with a cost-effective, quick reaction, all weather, all terrain, high accurate battlefield support tactical system.

The weapon has sophisticated inertial navigation and electro-mechanical actuation system. It can be transported to anywhere within a short span of time. It was the second test of the missile, which was first tested on July 21, 2011. It will be inducted in the army after few more tests, the official said.

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terrain, high accurate battlefield support tactical system. Prior to the test, 4228 people including 3593 adults and 635 children from 634 families in five hamlets located within two km radius of the test range were shifted to two temporary shelters and mariners were alerted.

What Makes Prahaar Lethal

- Strike range is 150 km
- Small, lean and slim having a length of 7.32 meter and diameter 420 mm
- Weighs around 1.28 tonne
- Can carry warhead up to 200 kg
- Uses solid propellant and travels at a speed of Mach 2
- Highly manoeuvring with better accuracy
- Launcher can carry six missiles having different kind of warheads meant for different targets
- Can be fired in salvo mode in all directions covering the entire azimuth plane
- Can be deployed in both stand-alone and canisterised mode

Source: http:// www.newindianexpress.com, 20 September March 2018.

India Successfully Conducts First Night Trial of Indigenous Interceptor Missile

As the nation slept on Sunday night, India successfully conducted its first night trial of its indigenously developed BMD from a defence facility off the Odisha coast. The test is considered to be a major milestone in developing a two-layer Ballistic Missile Defence system. With the successful testing of the anti-ballistic missile system, India has become the 4th nation in the world to have a robust BMD system after US, Russia and Israel. According to defence sources, the hot standby interceptor missile Prithvi Defence Vehicle (PDV) which is capable of destroying enemy weapon systems at high altitudes of above 100 km, was flight tested against a target missile fired from a warship anchored in the Bay of Bengal. "Both the PDV interceptor and the target missile were successfully engaged," DRDO sources said.

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The made-in-India anti-ballistic missile Prithvi Defence Vehicle was blasted off from the launching complex of Abdul Kalam Island a few minutes after the target, a modified Prithvi ballistic missile, was launched from the warship. The radar-based system detected and tracked the ballistic missile and the computer network, with help from the data received by the radars, predicted the trajectory of the incoming ballistic missile and provided requisite command to fire the PDV interceptor missile. The target was set up in the Bay of Bengal to simulate a hostile ballistic missile approaching from more than 2,000 km away. The test of the next generation state-of-the-art interceptor missile Prithvi Defence Vehicle developed by DRDO was aimed at engaging target in the exo-atmosphere region.

The DRDO has been focusing on high altitude interceptor missiles because if an incoming missile is intercepted at an high altitude, the debris would not fall on the ground and there would be no collateral damage. The PDV has been tested twice before, with the first test on April 27, 2014 and the second test on February 11, 2017, however, September 23, 2018 test was the first one conducted at night.

Source: http:// www.newsworldindia.in, 24 September March 2018.

NUCLEAR ENERGY

CHINA

China Drafts New Nuclear Energy Law, Focus on International Market

China will provide more support for its nuclear firms to go overseas and strengthen their position on the international market, according to new draft

legislation submitted to the industry for consultation on September 21, 2018. "The state will encourage and support the positive and orderly participation of its enterprises in the international market" and promote the export of nuclear equipment, fuel and services, the draft Atomic Energy Law says.

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China aims to bring its total installed nuclear capacity to 58 gigawatts (GW) by the end of 2020, up from 37 GW at the end of June 2018, but it also has ambitions to dominate the global market and has created a unified third-generation reactor brand known as the "Hualong One" to sell overseas. China has already signed a series of preliminary agreements with countries like Brazil, Argentina, Uganda and Cambodia and it is also undergoing a technical approval process for the Hualong One in Britain.

The government also published new guidelines in August aimed at promoting its own technical standards in foreign markets and play a "leading role" in the global nuclear technology standardization process. However, its only overseas nuclear project so far is the Chashma nuclear complex in Pakistan.

China's new draft atomic energy law sets out the government's responsibilities when it comes to disclosing information about the safety and environmental impact of nuclear power. It also includes clauses calling for the "convergence" of military and civilian research into nuclear energy. It calls for the establishment of a uranium reserve and a system for storing, transporting and treating spent fuel.

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China was once regarded as one of the bright spots for the global nuclear sector, but its ambitious domestic reactor building program has slowed considerably, with no new projects approved since 2016. In a bid to guarantee safety in the wake of Japan's Fukushima disaster in 2011, China promised to deploy only new and safer reactor technology, including Westinghouse's AP1000 and the EPR designed by France's Areva. But the untested models have been repeatedly delayed amid design flaws and huge cost overruns, and Beijing is now expected to struggle to meet its 58 GW target.

Source: *http:// www.reuters.com, 22 September 2018.*

GENERAL

Investment Needed to Maintain Nuclear's Growth, Says IAEA

New power reactors must be brought online over the coming decades to maintain nuclear's "key role" in combating climate change, according to newly published IAEA projections. Energy, Electricity and Nuclear Power Estimates for the period up to 2050 is the 38th edition of the IAEA's annual publication, based on actual statistical data from the agency's Power Reactor Information System and the United Nations Department of Economic and Social Affairs.

The country-by-country projections it contains are based on national projections supplied by countries to the OECD Nuclear Energy Agency and projections made by other international

organisations, taking into account possible licence renewals, planned shutdowns and foreseeable construction projects. These are used to produce two scenarios: a low case, described as "conservative but plausible", which assumes that current market, technology and resource trends continue with few policy changes to affect nuclear power; and a high case, which assumes that current rates of economic and electricity demand growth continue.

At the end of 2017 there were 448 operational nuclear power reactors around the world, with a combined generating capacity of 392 GWe. These reactors produced a total of 2503 TWh of electricity in 2017, accounting for about 10% of total electricity production.

The IAEA noted that at the end of 2017 there were 448 operational nuclear power reactors around the world, with a combined generating capacity of 392 GWe. These reactors produced a total of 2503 TWh of electricity in 2017, accounting for about 10% of total electricity production. "Over the short term, the low price of natural gas and the impact of subsidised intermittent renewable energy sources on electricity prices are expected to continue to affect nuclear growth prospects in some regions of the world," the report says. "In the near term, ongoing financial uncertainty and declining electricity consumption in some regions will continue to present challenges for capital-intensive projects such as nuclear power."

Nuclear generating capacity is projected to reach 511 GWe by 2030 and 748 GWe by 2050 in the IAEA's high growth projection. This represents a 30% increase over current levels by 2030 and a 90% increase of capacity by 2050. The low case projects a 2030 nuclear capacity of 352 GWe, rising slightly to 356 GWe in 2050.

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In its low case, the IAEA projects that some 139 GWe of nuclear generating capacity will be retired by 2030, while 99 GWe of new capacity will be added. Between 2030 and 2050, a further 186 GWe will be retired and 190 GWe added. In the high case, which assumes several older reactors will be given licence extensions, only 55 GWe of capacity will be retired by 2030, with a further 207 GWe retired by 2050. In this case, 175 GWe of new nuclear capacity is added by 2030 and about 443 GWe added by 2050.

Total nuclear electricity production will continue to increase between now and 2050, according to the IAEA. In the high case, nuclear electricity production will increase to 3969 TWh in 2030 and 6028 TWh in 2050. In the low case, nuclear electricity production will increase to 2732 TWH in 2030 and 2869 TWh in 2050. The share of nuclear electricity in total electricity production will decrease in the low case from about 10.3% in 2017 to 7.9% in 2030 and 5.6% in 2050. In the high case, its share will increase to 11.5% in 2030 and to 11.7% in 2050.

The IAEA said interest in nuclear power "remains strong in the developing world", particularly in Asia. It suggests that commitments agreed to at the 21st session of the UN Climate Change Conference (COP21) "could also produce a positive impact on nuclear energy development in the future". In a statement to the IAEA board of governors on September 10, 2018, IAEA Director General Amano said: "The Agency's latest annual projections show that nuclear power will continue to play a key role

in the world's low-carbon energy mix. However, the declining trend in our low projection for installed capacity up to 2050 suggests that, without significant progress on using the full potential of nuclear power, it will be difficult for the world to secure sufficient energy to achieve sustainable development and to mitigate climate change."

The nuclear industry has set the Harmony goal for nuclear energy to provide 25% of global electricity by 2050. This will require trebling nuclear generation from its present level. Some 1000 GWe of new nuclear generating capacity will need to be constructed by then to achieve that goal. World Nuclear Association has identified three areas for action to achieve this: establishing a level playing field in electricity markets, building harmonised regulatory processes, and an effective safety paradigm.

Source: *https:// www.world-nuclear-news, 12 September 2018.*

USA

President Trump Signs Bill to Boost Advanced Nuclear in America

President Donald Trump signed into a law new legislation that will speed up the development of advanced reactors in the United States. The Nuclear Energy Innovation Capabilities Act (NEICA) eliminates some of the financial and technological barriers standing in the way of nuclear innovation. It also represents a strong commitment by the government to support the commercial nuclear sector, ensuring that the U.S. maintains its leadership around the globe.

The provisions in NEICA build upon the successful private-public partnerships facilitated through the Gateway for Accelerated Innovation in Nuclear (GAIN), which helps accelerate the development and deployment of advanced reactor technologies. "There are some truly transformative advanced nuclear technologies being developed in America right now and this bill just reinforces this Administration's continued efforts to revitalize the nuclear industry," said Ed McGinnis, principal deputy assistant secretary for the Office of Nuclear Energy.

Cutting Regulatory Costs: NEICA fosters teamwork between the public and private sector and will help offset some of the upfront costs of licensing new reactors. The bill calls for a cost-share grant program to cover a portion of the licensing fees charged by the U.S. Nuclear Regulatory Commission during its review process for new reactor technologies.

Fast Neutron Source Testing Facility: The legislation also directs DOE to move forward with plans to develop a fast neutron source (i.e., a fast test reactor) to accelerate the development of advanced reactor fuels and materials. This capability doesn't exist in the United States and is needed to test new reactor materials and fuels for use in advanced reactors.

***Advanced Reactor Demonstrations*:** The bill directs the Department to facilitate the siting of advanced reactor research demonstration facilities through partnerships between DOE and private industry.

***All about the Data*:** Finally, the bill requires DOE to expand its high-performance computing expertise by focusing on the modelling and simulation of advanced nuclear reactors to further accelerate their development. The national labs, universities and private sector will help develop new software and tools for developers to use to speed up their research on fission and fusion reactors, in addition to space applications.

What's Next?: Secretary of Energy Rick Perry will have 180 days to provide Congress with a report assessing the capabilities of DOE to host and operate experimental advanced nuclear reactors at the national labs or other DOE sites. The secretary will also submit two 10-year budget plans for nuclear R&D.

NUCLEAR COOPERATION

AUSTRALIA–INDIA

Hope to Send Uranium Shipment to India in "Near Future": Australia

Australia's High Commissioner to India, Sidhu, on September 18, 2018 expressed hope that the

country would be sending a consignment of uranium to India in the "near future". Speaking at the Australia Fest in Delhi, Mr Sidhu said, "Foreign Minister Bishop was here in India in 2017 and after prime minister's visit, she had mentioned some samples were sent to the Indian authorities for testing to make sure that the uranium was fit to be sold. I understand that conversations are going on and we are genuinely hopeful that there will be a shipment of uranium in the near future. I can assure that from the Australian government's perspective, there is a high level of support and we're very keen to see such progress."

Australia is one of the world's largest exporters of uranium ore, having 40 per cent of its reserves. Both India and Australia had signed a civil nuclear agreement in 2014 to facilitate the supply of uranium to India. The exports of uranium in India are banned as the country is not a part of the NPT. However, Australia has been a supporter of India's entry into the NSG. ...

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Source: http:// www.ndtv. com/india-news, 19 September 2018.

IRAN–CHINA

Iran, China Agree to Increase Co-op in Nuclear Safety

Head of the Atomic Energy Organization of Iran (AEOI) Ali Akbar Salehi and his Chinese counterpart discussed ways to enhance cooperation in different nuclear fields, particularly nuclear safety. During a meeting on the sidelines of the 62nd IAEA General Conference in Vienna, Salehi and his Chinese counterpart explored ways to increase cooperation in the sectors of nuclear education, nuclear security and safety, and nuclear plants.

Both sides referred to the Iran-China age-old ties and called for enhanced relations between the two sides following US President Trump's pullout from the 2015 nuclear deal between Tehran and world powers and re-imposition of new sanctions. The Chinese side described the Tehran-Beijing ties as "strategic" and said China was ready to enhance nuclear ties with Iran. They also agreed to build small and medium-sized reactors in Iran.

Representatives from the IAEA member states, including at ministerial level and above, convened at the 62nd IAEA General Conference in Vienna to discuss key elements of the agency's priorities in its work on the peaceful use of nuclear technologies. At the conference, delegates are considering a range of issues from strengthening the agency's activities related to nuclear science, technology and applications, to improving the efficiency of IAEA safeguards and growing international cooperation in nuclear, radiation, transport and waste safety. Delegates will also discuss the IAEA Annual Report for 2017, its Financial Statements for 2017, and its Program and Budget Update for 2019.

Source: *http:// en.trend.az, 19 September 2018.*

UK–USA

UK and USA Enhance Nuclear Research Cooperation

The UK's National Nuclear Laboratory (NNL) and the US Department of Energy's Oak Ridge National Laboratory (ORNL) have agreed to cooperate on nuclear energy research. The announcement came as the UK and USA signed a nuclear R&D action plan. Under the MoU - which aims to leverage both organisation's expertise and capabilities - NNL and ORNL will collaborate on nuclear-related projects through idea sharing, staff exchanges and joint workshops.

The collaboration will include developing modelling and simulation tools for advanced nuclear reactors, exploring accident-tolerant fuel concepts, developing management and

assessment techniques for used fuel, and pursuing the production of isotopes for space, medical and industrial applications. The agreement will run for three years. "The goal in each area is to provide different perspectives on how the two organisations tackle difficult research questions that meet the needs of the nuclear community," ORNL said.

NNL is known for its Nuclear Fuels Centre of Excellence and in-house high-performance computing capabilities. In addition, the laboratory has established analysis tools including the Orion fuel cycle modelling code and the Enigma fuel performance code. ORNL's nuclear capabilities span similar offerings that include the internationally recognised Scale code system, the Virtual Environment for Reactor Applications analysis tools from the Consortium for Advanced Simulation of Light Water Reactors and various R&D facilities for nuclear applications. "It is an exciting opportunity to expand what we do as a national laboratory, and potentially do it better, through such a unique partnership with a leading nuclear institution like NNL," said Alan, associate laboratory director for the Nuclear Science and Engineering Directorate at ORNL. "This agreement brings together two globally recognised leaders to continue answering our respective nations' calls for excellence in nuclear science and technology."

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Paul Howarth, CEO of NNL, said: "I am delighted to reach agreement on this pioneering new MoU with ORNL, which will allow us to build on our already well-established relationship. Together we will draw on the world-leading expertise from our respective organisations and use our complementary skills and knowledge to further nuclear energy-related research and development. This will include the development of exciting and innovative technologies of the future."

***Nuclear Round Table*:** The agreement between NNL and ORNL was announced during a meeting of UK and US decision and policy makers held earlier. The UK-US Nuclear Round Table was held at the British Embassy in Washington, DC, and was jointly hosted by NNL and the UK's Department for International Trade, and the Department for Business, Energy and Industrial Strategy (BEIS). The event provided attendees with a senior briefing on UK and US policy developments affecting the sector as well as opportunities to discuss challenges and barriers between the two countries. Rob Whittleston, VP Insight at NNL, said: "At a time of significant sector developments for our respective nations, this event brings together senior industry representatives and policy makers from both sides of the Atlantic." He added, "In addition to UK and US policy updates, attendees heard tangible examples of industry experience of delivering value via successful UK-US collaboration in nuclear, and about the need to drive disruptive innovation into the sector. This was followed by a facilitated round table session which was a chance for industry representatives and policy makers to discuss opportunities and challenges, and consider how we can work more effectively together aligned to the policy/strategy ambitions of both nations, including through a commercial lens."

UK-USA Action Plan: The US DOE's Office of Nuclear Energy announced on September 13, 2018 that an action plan between the USA and UK had been finalised. The purpose of the plan - signed in Washington, DC, by the DOE and BEIS - is "to ensure nuclear energy's contribution to both countries' strategic energy resources, low carbon emissions targets, non-proliferation goals and nuclear energy safety objectives," it said. "The action plan seeks to facilitate cooperation in R&D for advanced civilian nuclear energy technologies between the two countries," DOE said. "Both recognise a variety of approaches and technical

pathways are needed to achieve optimal development of civil nuclear technologies over the long-term."

The plan calls for working groups to look at the following areas: radioisotopes for use in space technologies; nuclear reactor technologies; advanced fuels; fuel cycle technologies; advanced modelling and simulation; and, enabling technologies. "Agreement of the US and UK action plan allows us to move forward and focus on a number of key advances in nuclear energy, including reactors and fuels," said McGinnis, principal deputy assistant secretary of the DOE's Office of Nuclear Energy. "Both countries recognise the value of bilateral cooperation in nuclear energy innovation."

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DOE noted the new action plan will complement, not replace, existing mechanisms of cooperation and build on the current collaboration between the USA and UK in the university, laboratory and industry sectors. In June 2018, BEIS said the UK had signed a new Nuclear Cooperation Agreement with the USA, the first in a series of new international agreements "ensuring uninterrupted cooperation and trade" following the UK's exit from the European Union in March 2019.

North's commitment to disarming is "solid and firm" but that trust is crucial Washington is wary of easing sanctions or agreeing to another of the North's priorities, a declaration ending the Korean war, without Pyongyang first making significant disarmament moves.

Source: https:// www.world-nuclear-news. org, 14 September 2018.

NUCLEAR PROLIFERATION

NORTH KOREA

North Korea will not Abandon Nuclear Weapons if it cannot Trust US

North Korea needs more trust in the US and the developing relationship between the two countries before it will abandon its nuclear weapons, Pyongyang's top diplomat said. More than three months after a summit in Singapore, North Korean foreign minister Ri Yong-ho told world leaders at the United Nations General Assembly Pyongyang does not see a "corresponding response" from Washington to its early disarmament moves. Instead, he said, the US is continuing sanctions aimed at keeping up pressure.

"The perception that sanctions can bring us on our knees is a pipe dream of the people who are ignorant of us," Ri said, adding that continued sanctions are "deepening our mistrust" and deadlocking diplomacy. "Without any trust in the US there will be no confidence in our national security and under such circumstances there is no way we will unilaterally disarm ourselves first," Ri said, adding that the North's commitment to disarming is "solid and firm" but that trust is crucial.

Washington is wary of easing sanctions or agreeing to another of the North's priorities, a declaration ending the Korean war, without Pyongyang first making significant disarmament moves. Ri's comments come as Donald Trump and his secretary of state, Mike Pompeo, are trying to regain momentum in their quest to get North Korea to renounce its nuclear ambitions. Pompeo is planning to visit Pyongyang next month to prepare for a second Kim-Trump summit.

Both Kim and Trump want to meet again. But there is widespread skepticism that Pyongyang is serious about renouncing an arsenal that the country likely sees as the only way to guarantee its safety. Pompeo and Ri met on the sidelines of the general assembly for what Pompeo described as a "very positive" discussion. He did not give any details.

The North has traditionally said that the nuclear standoff is between it and the US, but recent summits between Kim and South Korean president Moon Jae-in have also dealt with the nuclear issue. Nuclear envoys from the US and South Korea have met three times during UN meetings to talk about ways to end North Korea's pursuit of an arsenal of nuclear-armed long-range missiles.

Source: https://www.theguardian.com, 29 September 2018.

North Korea 'Maintaining Nuclear Weapons Programme' – UN Envoy

There are signs that North Korea is "still maintaining and developing its nuclear weapons and ballistic missile programmes", a UN envoy has said. DiCarlo, UN Under-Secretary-General for Political Affairs, disclosed this at the Security Council meeting on Non-proliferation and the Democratic People's Republic of Korea, also known as North Korea. This is just as the US Permanent Representative to the UN, Haley, and her Russian Federation counterpart, Nebenzia, engaged in war of words over the progress of North Korea's nuclear weapons programme.

The DPRK's nuclear activities are clear violations of relevant UN Security Council resolutions and are deeply regrettable. "The Agency continues to enhance its readiness to play an essential role in verifying the DPRK's nuclear programme if a political agreement is reached among countries concerned.

The briefing on the implementation of sanctions on North Korea was requested and chaired by the US Ambassador to the United Nations and the UN Security Council President for the month of September. The 15 Council members sat to consider the latest midterm report of the Panel of Experts of the 1718 DPRK Sanctions Committee, which was established to oversee the relevant sanctions relating to North Korea.

DiCarlo welcomed the positive announcements made by North Korea with regards to ending nuclear testing in April and May 2018, including DPRK's leader Kim Jong-Un's stated commitment to the denuclearisation of the Korean Peninsula. She, however, added that Amano, the Director General of the IAEA, reported in May 2018 that the Agency had observed nuclear signatures consistent with the continued operation of a plutonium production reactor, radiochemical laboratory and alleged uranium enrichment facility in Yongbyon, North Korea. In an IAEA statement released on September 17, 2018, Amano said: "The DPRK's nuclear activities are clear violations of relevant UN Security Council resolutions and are deeply regrettable. "The Agency continues to enhance its readiness to play an essential role in verifying the DPRK's nuclear programme if a political agreement is reached among countries concerned."

DiCarlo recalled that in 2017, the Korean Peninsula was at the centre of world concerns over peace and security, in the face of DPRK's nuclear testing and threats. She noted that the unity of the Security Council helped create the opportunity to engage diplomatically, reduce military tensions and re-open channels of communication. Haley, however, reiterated claims made by the US Mission to the United Nations on September 13, 2018, stating that Russia had pressured the panel to alter its independent report, which included sanctions violations implicating Russian actors – and accused Russia of "working across the board to undermine the sanctions regime."

In response, Nebenzia, the Russian Federation's Ambassador to the UN claimed that the US was using the meeting to try to "impose on the international community their own vision of the situation." The Russian envoy said the work of the Panel of Experts had become "increasingly politicised" and that the first version of the report did not meet the required standards of objectivity and impartiality. Nebenzia said the Russian Federation and other members of the North Korea Sanctions Committee "expressed a number of comments which were reviewed correctly by the Experts, and then taken on board, when they

transferred the report to the Security Council."

Source: http:// theeagleonline. com, 18 September 2018.

NUCLEAR NON-PROLIFERATION

INDIA

India Puts Four More Nuclear Facilities under IAEA Safeguards

India has decided to place four more reactors under the IAEA safeguards. Accordingly, two Russian-designed Pressurised Light Water Reactors and two Pressurised Heavy Reactors being built with Indian technology will be covered. With this, a total of 26 Indian nuclear facilities will be under the international nuclear energy watchdog. This was stated by Basu, Chairman, Atomic Energy Commission and Secretary, DAE, at the 62nd General Conference of IAEA Vienna, Austria, on September 19, 2018. Basu... reiterated the primacy to IAEA in its central role in promotion of atomic energy for peaceful uses and prosperity of the mankind while maintaining its due support in safeguards.

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***Nuclear Programme*:** Giving an update on the country's nuclear power programme, Basu said the plans to build 21 reactors by 2030 was on track. Discussions with foreign partners for bringing different technology are also on, he said. "We have signed the industrial-way-forward agreement between NPCIL, India and EDF of France in March 2018 for the establishment of six nuclear power reactors of EPR technology," he said. The indigenously developed prototype fast breeder reactor of 500 MWe is undergoing sodium commissioning and criticality is expected in 2019.

***Record Performance*:** In power generation, a notable achievement was one of the longest run of reactor Unit-1 of Kaiga plant. By reaching 859 days of continuous operation, it has become the third longest running plant in the world. Four other reactors also continue to operate for 450 days and above. "These achievements establish the soundness of technology and efficiency in operation and maintenance," the Atomic Energy Chief claimed. The units 1&2 at Karapar Power Station experienced pressure tube leaks. After an indepth study of the root cause and detailed evaluation by the AERB, these units have been permitted to restart. On September 17, 2018, Unit 2 was restarted after coolant channel replacement, he added.

The DAE has signed an agreement with the Department of Natural Resources of Canada on Science & Technology and Innovation and another with VINATOM of Vietnam on training and capacity building. In April, an inter-governmental collaboration was inked with Fermilab in the field of Neutrino Physics during the visit of US Secretary of Energy.

Cancer Care: Tata Memorial Centre (TMC) has played a significant role in enhancing the capacity of trained manpower to deal with the problem of cancer by short term and long-term training to IAEA fellows. Over 150 personnel from Africa and Asia have been trained in the field of cancer care.

Source: http://www.thehindubusinessline.com, 19 September 2018.

NUCLEAR DISARMAMENT

MYANMAR

Myanmar to Sign UN Nuclear Weapons Ban Treaty

Military representatives to Myanmar's Parliament discussed in favor of signing the United Nations Treaty on the Prohibition of Nuclear Weapons (TPNW) during the parliamentary session on September 14, 2018. As lawmakers debated President Myint's proposal to sign the TPNW, military representative to the Lower House Lieutenant-Colonel Zaw said the signing would clear up the doubts as to whether Myanmar is developing nuclear weapons. Myanmar attracted

global concern in the 2000s when the country's then military rulers maintained close relations with North Korea regarding arms sales, nuclear missile development and nuclear warhead technology. The Washington-based Nuclear Threat Initiative said Myanmar had developed relations with North Korea in the hope of receiving missile and nuclear weapon technologies.

The treaty obliges State parties to provide adequate assistance to individuals affected by the use or testing of nuclear weapons, as well as to take necessary and appropriate measures of environmental remediation in areas under its jurisdiction or control contaminated as a result of activities related to the testing or use of nuclear weapons.

"If we sign the agreement, this will clear up the past accusations against our country and the Tatmadaw. Besides, this will also contribute to our country being able to use nuclear energy peacefully. So, I'd like to urge [the Parliament] to weigh the national interests," said the lieutenant-colonel. Myanmar is sandwiched between two big nuclear-armed states, and in case of a nuclear threat, it can seek help from the international community after signing the treaty, he said.

Myanmar's Tatmadaw wants to have nuclear technologies, not to produce weapons of mass destruction but to use in the medical, science, technology, and energy sectors according to international norms, said the military representative. Lawmakers also discussed in favor signing the treaty, saying that it would boost the country's image. "By signing the treaty, Myanmar will be recognized by international countries as a responsible country," said Dr. Maung, Upper House lawmaker from Bago Region.

The treaty is not yet in force but will enter into force with ratification by more countries, said Union minister for International Cooperation Tin. The treaty includes a comprehensive set of prohibitions on participating in any nuclear weapon. These include undertakings not to develop, test, produce, acquire, possess, stockpile, use or threaten to use nuclear weapons. The Union Parliament approved signing the treaty, and the Myanmar delegation will sign it at the ceremony to ratify international treaties from September 26-28, 2018 during the 73rd UNGA in New York, said the minister.

Though the treaty will not lead to the total elimination of nuclear weapons, it allows non-nuclear weapon states to put political pressure on countries with nuclear weapons, said Tin. The treaty obliges State parties to provide adequate assistance to individuals affected by the use or testing of nuclear weapons, as well as to take necessary and appropriate measures of environmental remediation in areas under its jurisdiction or control contaminated as a result of activities related to the testing or use of nuclear weapons. The treaty was adopted in July 2017 during the UN General Assembly. Through August 23, 2018, 60 countries ratified it and 14 countries were approved. Myanmar signed the NPT in 2012, Biological Weapons Convention in 2014, Chemical Weapons Convention in 2015, and CTBT in 2016.

North Korean leader Kim is ready to accelerate denuclearization of his country in exchange for security guarantees from the United States and wants to hold a second summit with U.S. President Trump at an early date, South Korean President Moon said.

Source: https:// www. irrawaddy. com, 17 September 2018.

NORTH KOREA

N. Korea Ready to Denuclearize, Hopes for 2nd Summit with U.S.: Moon

North Korean leader Kim is ready to accelerate denuclearization of his country in exchange for security guarantees from the United States and wants to hold a second summit with U.S. President Trump at an early date, South Korean President Moon said on September 20, 2018. Moon also said his government seeks to declare a formal end to the Korean War before the year's end, and that he will bring up the issue when he meets Trump

in New York. "Chairman Kim expressed his wish to finish complete denuclearization at an early date and focus on economic development," Moon said of his meeting with the North Korean leader in Pyongyang. The remarks came after Moon's three-day trip to the North Korean capital for his third bilateral summit with Kim. The two Koreas technically remain at war as the 1950-53 Korean War ended only with an armistice, not a peace treaty.

The North Korean leader agreed to permanently dismantle his country's only missile engine test facility and launch pads in Dongchang-ri in the presence of international experts. Kim also offered to dismantle the country's key nuclear facility in Yongbyon should the U.S. take corresponding measures.

Moon said he also had an additional message from Kim for the U.S. president. "Among what we discussed, there are items that we did not include in the joint declaration," he said, referring to his joint declaration with Kim issued September 19, 2018 in Pyongyang. "I plan to deliver such messages in detail to the U.S. side should I visit the United States and hold a summit again with President Trump in the future," he added. The South Korean president is set to visit New York to attend the UNGA. His office Cheong has said he and Trump will hold a bilateral summit on September 20, 2018. Those items discussed with Kim but not laid out in the Pyongyang declaration included an agreement to hold talks between the countries' parliaments, Moon said.

Moon's trip to Pyongyang was largely aimed at breaking a deadlock in denuclearization talks between the U.S. and North Korea that came after President Trump called off a North Korea trip by his top diplomat, Pompeo, citing what he called a lack of progress in the North's denuclearization process. The president said he and Kim dedicated nearly the entire first day of his three-day trip to discuss ways to completely denuclearize the Korean Peninsula and restart the stalled North Korea-U.S. dialogue. "However, specific ways to denuclearize and corresponding measures basically are an issue that need to be discussed between the North and the U.S.," he said, apparently renewing his call for an early resumption of U.S.-North Korea talks.

Washington seemed to have complied when its Secretary of State Pompeo said earlier that the U.S. is "prepared to engage immediately in negotiations to transform U.S.-DPRK relations," referring to North Korea by its official name, the Democratic People's Republic of Korea. The U.S. offer to resume its negotiations with the North comes after Kim offered to take additional denuclearization steps. In his summit with Moon, the North Korean leader agreed to permanently dismantle his country's only missile engine test facility and launch pads in Dongchang-ri in the presence of international experts. Kim also offered to dismantle the country's key nuclear facility in Yongbyon should the U.S. take corresponding measures.

The South Korean president stressed the need for the U.S. to take reciprocal measures for the North's denuclearization steps. "As you know, North Korea completely dismantled its Punggye-ri nuclear test site. Chairman Kim said North Korea can no longer stage nuclear tests because it has completely dismantled its only nuclear test site and that the country can have that verified at any time," Moon told a press conference in Seoul shortly after his return from the North. "In addition, should North Korea dismantle the Dongchang-ri missile engine site and launch pads, it will be unable to launch any more missiles or stage any attempt to further advance its missiles," he added. "If that is the case, the U.S. side, as well as our side too, need to take steps that would eradicate our hostile relations with the North."

As you know, North Korea completely dismantled its Punggye-ri nuclear test site. Chairman Kim said North Korea can no longer stage nuclear tests because it has completely dismantled its only nuclear test site and that the country can have that verified at any time," Moon told.

Moon said he will push for an early political

declaration of a formal end to the Korean War as the first step to end the hostile relationship and provide security guarantees. The president noted many in South Korea and the U.S. feared the move may weaken the South Korea-U.S. alliance, along with the rationale for keeping tens of thousands of U.S. troops in South Korea. He said it could not be further from the truth. "The idea of a formal end to the war that we use is the declaration of an end to the war that (the sides) agreed to sign in the same year they signed the (Korean) armistice 65 years ago. The concept that we use is that we will first make a political declaration of an end to the war and use that as a starting point for efforts to sign a peace treaty, and sign a peace treaty when North Korea achieves complete denuclearization," Moon said. "A declaration of an end to the war is a political declaration that says we will end our hostile relations," he said, adding Kim also shared the idea. Moon has already invited Kim to visit Seoul before the year's end. Kim has accepted the invitation.

Source: https:// english. yonhapnews.co, 20 September 2018.

USA–RUSSIA

US Officials Express Doubts on Future of Nuke Pact with Russia

Russian arms control violations and other malign activities are eroding the confidence and trust required to extend a critical nuclear agreement between Washington and Moscow that expires in 2021, U.S. officials told lawmakers on September 18, 2018. "Russia continues to violate a series of arms control obligations that undermine the trust of the United States can place in treaties, including some that have served U.S. and allied security interests for years" Under Secretary of State for Arms Control Thomson said in testimony before the Senate Foreign Relations Committee. "The bottom line is that arms control with Russia is troubled because the Russian Federation apparently believes it need only abide by the agreements that suit it," Deputy Under Secretary of Defense for Policy Trachtenberg said.

Russia continues to violate a series of arms control obligations that undermine the trust of the United States can place in treaties, including some that have served U.S. and allied security interests for years.

Negotiated by the former Obama administration, the New START treaty has limited America's and Russia's strategic nuclear arsenals since going into effect in 2011. U.S. officials said discussions have been held with their Russian counterparts on possibly extending or renegotiating the 10-year pact, but that Russian violations of an earlier accord between the United States and the former Soviet Union are a sticking point. "Russia has persisted in its violation of the INF treaty through its … ground missile program," Thompson said. "This administration has utilized diplomatic, economic, and military measures to pressure Russia to return to compliance. The lack of any meaningful steps by Russia to do so diminishes our hope that it wants to preserve the INF treaty." Russia also accuses the United States of INF treaty violations. By contrast, both sides are believed to be adhering to New START's provisions.

Asked whether the United States would extend New START, renegotiate the pact, or allow it to expire, Thompson said, "No decision has been made at this time." Republican Senator Risch of Idaho applauded the Trump administration's skepticism about Moscow's intentions and apparent willingness to walk away from New START.

"Trying to negotiate with people who aren't negotiating in good faith is a problem," Risch said. "They [Russian officials] are serial cheaters, they're serial liars, and you have to look at the other things they are doing in the world to judge what kind of a mind these people have as far as whether they are acting in good faith." But several Democrats argued New START provides a core benefit even if Moscow is violating other treaties. "New START gives us the opportunity to do the inspections [of Russian facilities] … This is extremely valuable," Senator Ben Cardin of Maryland said. "We know North Korea has a

nuclear program, but we don't know the specifics because we don't have inspections [of North Korean nuclear sites]. We don't have eyes on the ground."

The committee's top Democrat, Bob Menendez of New Jersey, echoed the concern. "Would withdrawing or walking away from an agreement strengthen our hand or ultimately leave us without a seat at the table, without insight into our adversary's stockpile? Safer or less secure?" Menendez asked. Trachtenberg declined to speculate, but said, "We are taking a deliberate approach to our assessment of all of these treaties, including the New Start treaty. I don't see this as a rush to judgment on the part of the administration." The deputy under secretary of defense added, "Any decision on extending the treaty will and should be based on a realistic assessment of whether the New Start treaty remains in our national security interest in light of overall Russian arms control behavior."

Several senators noted that U.S. lawmakers still don't know details of a private meeting in July 2018 between President Trump and Russian President Putin in Helsinki. "We remain largely in the dark as to what the two leaders discussed or agreed to during their two hour closed session," Menendez said. "We do know that the Russian Ambassador to the United States Antonov told reporters that important verbal agreements were reached at the Helsinki summit on arms control issues." Menendez added, "Has the president reached key decisions with Russia on arms control treaties? If so, why hasn't Congress been informed?" Thompson said she could provide no details of the Helsinki encounter, except that arms control was a topic of conversation.

Source: *https:// www.voanews.com, 18 September 2018.*

GENERAL

A World Free of Nuclear Weapons is a Global Vision that Requires a Global Response: UN Chief Guterres

Ahead of the 'International Day for the Total Elimination of Nuclear Weapons' to be observed on September 26, 2018, the UN Secretary-General, Guterres, in his message stated, "United Nations stands ready to work with all of you to achieve this (total elimination of nuclear weapons). Every State has a responsibility to contribute." "In recent months, the dangers posed by nuclear weapons have been forcefully driven home, making this event timelier than ever. We know that the horrific humanitarian and environmental consequences of the use of nuclear weapons would transcend national borders. As such, every State has a right to demand the elimination of these uniquely destructive weapons" he added in his released message.

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He remarked, "The DPRK has conducted a series of provocative nuclear and missile tests, heightening tensions and highlighting the dangers of proliferation. I again condemn these acts unequivocally, and I welcome the Security Council's firm action on the situation as well as its desire for a peaceful, diplomatic and political solution." According to him, nuclear disarmament has been a principled objective for the United Nations – from the very first General Assembly resolution to the recently negotiated Treaty on the Prohibition of Nuclear Weapons. He cautioned, "The only world that is safe from the use of nuclear weapons is a world that is completely free of the nuclear weapons themselves."

Earlier this year he had launched "Securing Our Common Future: An Agenda for Disarmament" campaign to address the elimination of nuclear weapons in the framework of "disarmament to

save humanity." Then, he had calls for resuming dialogue and negotiations for nuclear arms control and disarmament. He also supports extending the norms against nuclear weapons, and in that regard appeals to States that possess nuclear weapons to affirm that a nuclear war cannot be won and must never be fought. Finally, the agenda proposes preparing for a world free of nuclear weapons through a number of risk reduction measures, notably ending the production of fissile materials.

Source: https:// merinews.com, 24 September 2018.

NUCLEAR SAFETY

GENERAL

IAEA Nuclear Safety Review Service Marks 100th Mission Worldwide

A major IAEA peer review service for nuclear safety is marking a milestone. With a review under way in Hungary, the Integrated Regulatory Review Service, or IRRS, is conducting its 100th mission worldwide.

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Launched in 2006, the IRRS assists Member States in strengthening and enhancing the effectiveness of their national governmental, legal and regulatory infrastructure for nuclear and radiation safety. IRRS peer reviews are conducted at the request of Member States by teams of international experts using IAEA safety standards as the benchmark, while recognizing the responsibility of each country to ensure nuclear and radiation safety. The missions identify areas for improvement and host countries develop action plans to address their findings.

"The 100th mission is a significant achievement on nuclear safety for both the Agency and its Member States," said IAEA Deputy Director General Juan Carlos Lentijo, Head of the Department of Nuclear Safety and Security. "Regulators around the world have benefited from the IAEA-led peer review process by addressing areas for improvement identified by the IRRS teams, and by learning from good practices elsewhere. That process has strengthened regulatory effectiveness, which improves nuclear and radiation safety."

Since the IRRS's debut 12 years ago in Romania, the IAEA has coordinated missions on six continents. Besides the ongoing review in Hungary, IRRS missions are planned for later this year in Australia, Moldova, the Netherlands and Spain. While the IAEA offers Member States an array of peer reviews and advisory services, the IRRS remains a key service of the Agency. It is a cross-cutting review of regulatory, technical and policy issues suitable for all countries, regardless of whether they have a nuclear power programme or the extent to which they conduct activities involving the use of ionizing radiation.

... Looking forward, the IAEA is focused on making IRRS missions even more efficient and effective, in part by combining, when relevant and if so decided by the host country, different peer reviews and services to streamline the process. For example, next month's IRRS mission to Spain will be combined with an ARTEMIS service, an expert peer review launched in 2017 for radioactive waste and spent fuel management, decommissioning and remediation programmes.

Additionally, interest in the IRRS is growing among countries seeking to expand or introduce a nuclear power programme. Currently, around 30 countries are preparing or considering new nuclear power programmes. Four countries—Bangladesh, Belarus, Turkey and the United Arab Emirates—have begun construction on their first nuclear power plants. ...

Source: https://www. iaea.org, 28 September 2018.

How are the IAEA Safety Standards Produced? A Look Inside the Secretariat

Safety standards cover wide-ranging topics such as the operation of nuclear installations, transport and use of radioactive material, the management of radioactive waste and emergency preparedness and response. A new standard could impact another one, or a security guidance, therefore drafting requires mechanisms to ensure consistency. An internal Coordination Committee plays this key role of making sure that the 130 safety standards and 30 nuclear security guidance are consistent, coherent and compatible.

In August 2018 it helds its 300th meeting, with participants – IAEA managers in related fields – reviewing draft standards and guidance documents. "The safety standards are a comprehensive body of documents that help Member States uphold their responsibility for nuclear safety. The nuclear security series plays a similar role for security," said IAEA Deputy Director General Lentijo, Head of the Department of Safety and Security. "They all have the same purpose – supporting Member States' work to ensure safety and security, but they focus on a vast variety of topics. This makes coordination very important."

The safety standards are a comprehensive body of documents that help Member States uphold their responsibility for nuclear safety. The nuclear security series plays a similar role for security.

Shortly after its inception in 1957, the IAEA began developing and establishing safety standards, and the very first IAEA publication (STI/PUB/1) was Safety Series No. 1 on the safe handling of radioisotopes, published in December 1958. In 1996, the IAEA's Department of Nuclear Safety was created, with responsibilities including the preparation and review of the IAEA safety standards. Following a decision to distinguish between safety standards, to be issued in the Safety Standards Series, and informational publications, to be issued in the Safety Reports Series or Technical Documents, known as TECDOCs, it introduced a uniform preparation and review process for all standards.

In 2003, the Coordination Committee was established to ensure that the standards were created as part of an integrated programme, despite covering topics from four programmes - nuclear safety, radiation safety, transport safety and waste safety. In 2006, a key milestone was reached with the issue of the Fundamental Safety Principles, which lays out 10 principles that underpin safety. These note, for example, that "the prime responsibility for safety must rest with the person or organization responsible for facilities and activities that give rise to radiation risks". It also highlights that "an effective legal and governmental framework for safety, including an independent regulatory body, must be established and maintained." In 2012, the IAEA began issuing nuclear security guidance through the same preparation and review process, and the Coordination Committee's responsibility grew to also ensure that interfaces between safety and security are identified and taken into account.

***IAEA Safety Standards*:** The safety standards, established under authority derived from the IAEA Statute, are considered a global reference for protecting people and the environment. They are developed by experts from the IAEA and Member States in an open and transparent consensus-building process that takes several years and concludes with the IAEA Board of Governors establishing the standard. The series includes several categories of documents. The Fundamentals document is supplemented by seven General Safety Requirements and seven Specific Safety Requirements setting out requirements that must be met to ensure the protection of people and the environment. Safety Guides provide recommendations and guidance on how to act in line with the requirements. Users of the safety standards include regulatory bodies and other national authorities, organizations, operators and others involved in the use of radiation-related technologies.

Source: http://www.iaea.org, 14 September 2018.

NUCLEAR WASTE MANAGEMENT

SOUTH KOREA

Korea Expands Cooperation with IAEA on Radwaste

The Korea Radioactive Waste Agency (KORAD) has agreed to extend its existing cooperation and practical arrangements with the IAEA. The agreement and practical arrangements were signed by Cha Sung-soo, KORAD chairman, and Chudakov, IAEA deputy director general and head of the agency's department of nuclear energy, on the sidelines of the IAEA's 62nd General Conference in Vienna.

After originally signing a practical agreement with the IAEA in 2015, KORAD has expanded international exchanges by sending personnel to the IAEA to train specialists in radioactive waste management and international technology exchange, and to carry out projects related to the disposal of high-level waste. ...KORAD is a quasi-governmental organisation that was established in January 2009 as South Korea's national agency for radioactive waste management. It is responsible for the transportation, storage, treatment and disposal of waste, as well as site selection, construction, operation and post-closure management of the waste management facility. It comes under the Ministry of Trade, Industry and Energy.

Source: *https:// www.world-nuclear-news, 19 September 2018.*

UK

UK Government Urged not to Bury Nuclear Waste under National Parks

The National Trust and 18 other conservation groups have urged ministers to rule out burying nuclear waste below national parks as fears grow that the Lake District is being eyed as a potential site. In January, the government restarted its attempt to find a community willing to host such a facility after a previous search collapsed five years ago. Ministers have refused to exclude national parks from the process.

The green groups argued putting a nuclear dump under a national park would threaten the £6bn spent by millions of visitors. "We recognise that safe disposal of nuclear waste is one of the key challenges our society currently faces but this should not be used as an excuse to put at risk the huge range of benefits these areas deliver for society, the environment and the economy," the groups said in an open letter to the nuclear energy minister, Richard Harrington.

The Lake District national park is seen as a potential location for the underground facility, given Cumbria's nuclear history and proximity to Sellafield, where most of the UK's nuclear waste is currently stored.

The Lake District national park is seen as a potential location for the underground facility, given Cumbria's nuclear history and proximity to Sellafield, where most of the UK's nuclear waste is currently stored. The groups, which include the Woodland Trust and the Campaign to Protect Rural England, said Harrington risked undermining "long-established protections" afforded to national parks by comparing the prospect of a deep nuclear waste facility to a potash mine in North Yorkshire.

Harrington cited the mine as an example of development within national parks, telling MPs this summer that the potash mine would "leave very little blot on the landscape". Asked if he would exclude national parks as possible locations for a geological disposal facility for nuclear waste, Harrington said: "I am not saying we should have them on national parks but it would be very wrong to exclude them at the moment in this big policy statement."

Ministers have subsequently argued that "we cannot afford to restrict the siting process" and "most of the facility will be underground", in letters to campaigners that have been seen by the Guardian. MPs on the business, energy and industrial strategy select committee concluded that national parks should not be excluded.

Roy Payne, the executive director of GDF Watch,

which is monitoring the siting process, said even if parks were not ruled out, the chance of the facility being built beneath one was "close to zero", given local communities had the final say. A Department for Business, Energy and Industrial Strategy spokesperson said: "Legislation already ensures developments in national parks can only proceed in exceptional circumstances and must be appropriate and proportionate."

Source: https://www.theguardian.com, 28 September 2018.

USA

Environmental Group Raises Concerns over Transport of Nuclear Waste

An environmental group is hoping to raise awareness about the dangers of transporting nuclear waste. The Citizens Awareness Network stopped in Boston to talk about a proposal that would transport nuclear waste from New England to New Mexico. Since many New England nuclear power plants have shut down, surrounding communities are haunted by the question of what to do with the nuclear waste.

If nuclear waste were to spill during transport, everything within a 42-mile radius would be contaminated, and the clean-up would cost approximately $620-million.

According to the Citizens Awareness Network, corporations that previously owned or have taken ownership of the closed facilities are trying to ship nuclear waste to sanctioned sites in New Mexico and parts of west Texas. Tim Judson, the executive director of Nuclear Information and Resource Service, said that the waste would be put into canisters and buried underground in an area he referred to as a nuclear parking lot.

Deb Katz, executive director of Citizen's Awareness Network, told 22News, "Every House rep in New England supported that bill, which in fact provides for parking lot dumps in West Texas and New Mexico." If nuclear waste were to spill during transport, everything within a 42-mile radius would be contaminated, and the clean-up would cost approximately $620-million. The Citizens Awareness Network believes that there are sustainable energy alternatives to nuclear power, and they will continue to share their ideas at events across the northeast.

Source: https:// www.wwlp.com, 21 September 2018.

Illinois and Nevada are Fighting over where to Store Nuclear Waste

American nuclear power plants produce a lot of radioactive waste, more than 2,000 tons each year, and there's a lot of controversy over where to put it. For now, it's spread out in temporary storage casks at about 70 sites across the country, but the Trump administration is eyeing a site in Nevada as a permanent solution.

American nuclear power plants produce a lot of radioactive waste, more than 2,000 tons each year, and there's a lot of controversy over where to put it. For now, it's spread out in temporary storage casks at about 70 sites across the country, but the Trump administration is eyeing a site in Nevada as a permanent solution.

The U.S. Department of Energy decided in 1987 that the best place to put the waste is inside a mountain in the Nevada desert, about 100 miles from Las Vegas. But that project — the Yucca Mountain Nuclear Waste Repository — has been tied up in permitting red-tape and politics, as Nevada's elected leaders have aimed to protect their state from catastrophe if something goes wrong. Pressured by powerful then-U.S. Sen. Harry Reid, a Nevada Democrat, the Obama administration stopped funding for the Yucca Mountain project's license in 2010.

But Reid is gone. And President Trump's Department of Energy has expressed interest in restarting research and development at Yucca Mountain. Seeing an opening, Illinois Republican Rep. John Shimkus, chair of the Environment Subcommittee of the House Energy and Commerce Committee, has plowed ahead with a bill passed through the House that would bring Yucca Mountain much closer to opening its doors.

But another Nevada senator is standing in the way. This time, it's U.S. Sen. Dean Heller, a Republican,

who has pledged that Nevada will never be the nation's nuclear waste dumping ground. "Under my watch, I will not let one more hard-earned taxpayer dollar go toward this failed project," Heller said in a statement this spring. "Yucca Mountain is dead; it is that simple."

In a Washington rarity, something trumped partisanship: geography. Illinois has more nuclear waste than any other state, and Shimkus is prepared to fire on members of his own party if it means winning the fight to get nuclear waste out. "When it was Obama and Reid, I could do some righteous anger, partisan-wise," Shimkus said. "But now it's [Republican Senate Majority Leader Mitch] McConnell and [Republican House Speaker] Paul Ryan."

Without a permanent solution for storing nuclear waste — which is dangerous some 10,000 years after it's considered spent fuel — the nuclear plants themselves store the waste onsite, in so-called concrete "casks," arranged on the edges of properties. That spent nuclear fuel is piled up in more than 80 locations across the country.

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At a nuclear power plant outside Rockford, Illinois, Shimkus said his state of 13 million people shouldn't bear the risk of radioactive waste. "If [casks] stay here, they'll stay here forever," Shimkus said from the Byron Generating Station, about 100 miles from Chicago. "And the nuclear regulatory commission says these [casks] are safe. "But it's only safe for about 40 or 50 years. Let's find a permanent repository. If completed, Yucca Mountain will be safe for this type of storage for a million years."

Source: Nigel Duara and Agnes Walton, https://news.vice.com, 29 September 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).

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