



# NUCLEAR SECURITY

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



Vol 10, No. 20, 15 AUGUST 2016

## OPINION – Michael Krepon

### Hiroshima Wrongly Overshadows Nagasaki

Hiroshima gets all the attention, but Nagasaki teaches the more important lesson. The need to destroy Hiroshima will be forever debated, but the counterarguments were unpersuasive to President Harry Truman and Secretary of War Henry Stimson. A world war had taken the lives of tens of millions. Non-combatants were not spared. When a war-ending weapon was finally available — too late to make unnecessary the Normandy landing, but just in time to substitute for the invasion of Japan's home islands — Truman and Stimson chose to end the carnage as soon as possible.

The arguments in favor of the first explosive use of an atomic bomb do not apply to the second. Japan's War Cabinet was absorbing the dual shocks of Hiroshima and Russia's declaration of war against Japan. At a minimum, Truman and Stimson should have waited more than three days before obliterating Nagasaki and killing its inhabitants. The argument used to justify the fate of Nagasaki was that Japan's dead-enders needed to know that more atomic bombs would rain death and destruction unless they surrendered. This justification is not persuasive because everyone understood that the immense machinery of US war production would

**Whatever: After Hiroshima, it was worth the wait. That Nagasaki was sacrificed without waiting is a testament to the inexorable danger inherent in war plans involving nuclear weapons. Truman and Stimson chose not to intervene with their agreed plan to keep up the bombing until Japan surrendered.**

### CONTENTS

- ☞ OPINION
- ☞ NUCLEAR STRATEGY
- ☞ BALLISTIC MISSILE DEFENCE
- ☞ NUCLEAR ENERGY
- ☞ URNIUM PRODUCTION
- ☞ NUCLEAR COOPERATION
- ☞ NUCLEAR PROLIFERATION
- ☞ NUCLEAR DISARMAMENT
- ☞ NUCLEAR TERRORISM
- ☞ NUCLEAR SAFETY
- ☞ NUCLEAR WASTE MANAGEMENT

be working overtime to make more atomic bombs, and that it was just a matter of time when they would rain more destruction over Japan.

The need to surrender would sink in after Hiroshima and the Russian announcement. Would this take three days, five or ten? Whatever: After Hiroshima, it was worth the wait. That Nagasaki was sacrificed without waiting is a

testament to the inexorable danger inherent in war plans involving nuclear weapons. Truman and Stimson chose not to intervene with their agreed plan to keep up the bombing until Japan surrendered. The US possessed two A-bombs and detonated two A-bombs. If three were available, and if the Emperor was unable or unwilling to

assert himself over dead-enders, then a third city would have been targeted.

The fate of Nagasaki demands that leaders delve into nuclear war-fighting plans. They rarely do. Before assuming office, newly elected US presidents receive briefings on the nuclear codes and the “football” that will become constant company, but these briefings are more about process than substance. Presidents usually don’t dwell on targets, since there are so many of them as to be incomprehensible. The natural human reaction to even the briefest introduction to Armageddon is to shudder inwardly and to hope fervently that targeting plans remain in locked safes.

Because nuclear weapons have not been used on battlefields since Nagasaki, it is safe to presume that this instinct has been widely shared — and not just by leaders, but also by those who found themselves well down the chain of command at terrible junctures in our nuclear history — those who looked bleakly into the abyss without the means or the time to check with higher authority. We now know the names of some of these heroes. One is Visili Alexandrovich Arkipov, who chose not to fire a nuclear-armed torpedo while his submarine was being depth charged to the surface during the Cuban missile crisis. Any human being who does not recoil at the point of decision to fire a nuclear weapon is, by definition, the most dangerous person on the planet. And yet nuclear war-fighting plans are predicated on these decisions.

The second most important line of defense against mushroom clouds is an intuitive understanding that controlling escalation once the nuclear threshold has been crossed is very likely to be a complete fiction. Leaders in the US, Russia and Pakistan who continue to assert the right of first use do so only by clinging to this extraordinarily thin reed.

Once the first mushroom cloud appears in a contest between nuclear-armed combatants, pressures to retaliate in kind will be immense. And once these Gates of Hell have been opened, mere mortals are likely to be powerless to close them. Mushroom clouds do not open lines of communication that have broken down, resulting in warfare. Under what pretense, then, do US and Russian leaders insist on having four-digit-sized nuclear arsenals? What will Chinese, Pakistani and Indian leaders do with three-digit-sized arsenals if a mushroom cloud appears by accident, miscalculation or fateful decision?

**Mushroom clouds do not open lines of communication that have broken down, resulting in warfare. Under what pretense, then, do US and Russian leaders insist on having four-digit-sized nuclear arsenals? What will Chinese, Pakistani and Indian leaders do with three-digit-sized arsenals if a mushroom cloud appears by accident, miscalculation or fateful decision.**

The historical example of Nagasaki speaks volumes about how hard it is for leaders to grind the machinery of warfare to a halt once the first mushroom cloud appears. Nagasaki therefore demands our attention as much as Hiroshima. The fundamental lesson of Nagasaki is that a second

nuclear detonation follows the first. On the 71st anniversary of Nagasaki, Barack Obama and Vladimir Putin can spend no better time than to take a very hard look at the nuclear war-fighting plans their armed forces have prepared. And then pick up the phone to agree on parallel reductions in their massive nuclear arsenals.

*Source: <http://www.usatoday.com>, 07 August 2016.*

**OPINION – Rich Lowry**

**Obama’s Nuclear Fantasy Would Make the World More Dangerous**

The Obama administration is entering its final months, but it’s never too late to further diminish US influence and discomfit our allies. President Obama is considering adopting a policy of NFU, i.e. declaring that the US would never use nuclear weapons except after a nuclear attack on itself or its allies. From Obama’s perspective, this change would have the dual advantage of being something

the president can legitimately do on his own while also representing a radical departure in the country's nuclear doctrine. For 70 years, presidents of both parties have maintained a posture of nuclear ambiguity. We wanted enemies to have to contemplate the possibility of a US nuclear response to acts of aggression. This added an extra element of uncertainty and risk to potential attacks on us or our friends, in the hopes of deterring them in the first place.

For the advocates of NFU, the very fact that ambiguity has been our policy for so long is a reason to abandon it. They urge that we get beyond "Cold War thinking," a favorite line of President Obama's as well. The end of the Cold War indeed changed the strategic environment. But it didn't make nuclear weapons obsolete, or render age-old concepts like deterrence inoperative, or eliminate international conflict. The paradox of nukes is that they are weapons of cataclysmic destructive force at the same time that they have proven a guarantee of peace. As the strategist Bernard Brodie wrote at the dawn of the nuclear age, "Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them."

It is thanks in part to the advent of nuclear weapons that we have averted the total wars between great powers that made the first half the 20th century a vast killing field. Declaring NFU would kick away an element of our nuclear deterrent. Yes, we no longer have to worry about deterring a massive Soviet army facing West. But Vladimir Putin has already changed the borders of Europe through force, and there's no reason to think he's necessarily done. A Rand Corporation study says that Russian forces could reach the capitals of the Baltic States in less than 60 hours.

Why would we make Putin's calculation any easier in considering such move, or ease the minds of other potential aggressors like China and North Korea? We might never use nuclear weapons in

response to a conventional attack, no matter how brazen. Obviously the risks in resorting to nuclear weapons would be mind-boggling, but taking the possibility off the table serves no purpose. If we are going to have nuclear weapons, we should take advantage of their deterrent effect. Relying entirely on conventional forces for deterrence would require more military spending and more forward-deployed assets by us and our allies. Of course, the same analysts and activists who argue for NFU tend to be the same ones who think we spend too much on defense. One of these things does not go along with the other.

Our allies are freaked out about the prospect of NFU. They have long relied on our nuclear umbrella, and if it is being pulled back, countries like South Korea and Japan will need to reconsider their decisions to forswear nuclear weapons. This is why NFU would contradict President Obama's opposition to nuclear proliferation, and make Global Zero — the disarmament movement's goal of a world free of nuclear weapons — even more of a pipe dream. In short, there is nothing to recommend NFU unless you are a lame-duck president heedless of strategic reality and looking to make a gesture of anti-nuclear righteousness. NFU would make the world, at the margins, a more dangerous place — and be a perfect parting shot for President Obama.

*Source: <http://nypost.com>, 08 August 2016.*

**OPINION – Sameer Lalwani**

**Bringing South Asia's Nuclear Debate out of the Shadows**

The leading powers in Southern Asia—India, Pakistan, and China—are engaged in an emerging triangular arms competition, which will intensify in the coming years. While a narrow set of elites, military leaders and defence scientists in India and Pakistan make consequential decisions about developing and inducting nuclear

weapons, most of the strategic community, politicians and civil society remain unengaged; apathy is dangerous. During the latter half of the Cold War, the US featured a robust debate among civilian analysts on nuclear strategy, deterrence and arms control—for example, in the development of multiple-warhead missiles. Unfortunately, there appears to be no analogous debates on nuclear issues in South Asia today.

Both India and Pakistan are currently building out their nuclear programs in dangerous ways. Missile tests continue at a rate of almost one per year. Doctrines and capabilities appear to be evolving in ways that threaten stability. Pakistan's arsenal of short-range nuclear weapons systems continues to grow, while India will soon be deploying nuclear weapons at sea. The nuclear competition in South Asia is the most dynamic in the world, and shows no sign of abating.

In a region already fraught with interconnected risk, the absence of debate on the pros and cons of an intensified nuclear arms race in India, Pakistan and China is distressing. However, creative approaches married to disruptive technologies can spark a healthy and informed debate to jumpstart sound decision-making on future nuclear security issues.

**Strategic Market Failure:** Despite the backdrop of increasing arms competition, it is quite difficult to learn about nuclear security issues in South Asia through the media, academic scholarship or university classrooms. South Asian media offers few serious debates and discussions of nuclear issues. Print and television journalism on nuclear security topics lacks the breadth of divergent perspectives or the depth of analysis, and often sounds like government press releases.

Strategic scholarship appears disengaged from the topic. Over the past ten years, nuclear security research in the region's leading journals has covered the issue in only 14 percent of the articles

in *Strategic Studies*, published by the Islamabad Strategic Studies Institute. And only 7 percent of the articles in *Strategic Analysis*, published by India's IDSA, have addressed nuclear security. During the height of the Cold War when the US was involved in a serious nuclear arms race with the Soviet Union between 1975-1990, roughly 60 percent of articles in the foremost US security journal, *International Security*, focused on nuclear issues. This disparity highlights the scarcity of nuclear security debates in South Asia.

Indian and Pakistani universities offer few courses on security studies, let alone nuclear security issues, for the next generation of strategists who will govern the bomb. What little material is available is usually framed in national narratives and overtaken by nuclear myth making. Despite the shortfall in nuclear security learning and academic debates, our informal surveys and discussions with young analysts and professors in India and Pakistan suggest there is demand for more comprehensive and balanced curriculum on nuclear security issues.

**Doctrines and capabilities appear to be evolving in ways that threaten stability. Pakistan's arsenal of short-range nuclear weapons systems continues to grow, while India will soon be deploying nuclear weapons at sea. The nuclear competition in South Asia is the most dynamic in the world, and shows no sign of abating.**

**Limited Debate on Nukes Poses Risk:**

*Limited debate and discussion poses real consequences. Indian and Pakistani public and strategic elites appear primed to embrace fighting under the nuclear threshold and use of nuclear weapons in war. In a recent survey experiment, a majority of Indian respondents favored the use of nukes under scenarios of a terrorist attack, even when other options were equally effective. The vast majority of Pakistani respondents to a recent Gallup survey expressed confidence in a military victory over India in the event of a war, as if there were no risks or downsides to major inter-state war between two nuclear powers.*

The shortfalls might be loosely described as a market failure. Insufficient information, scrutiny and debate of nuclear security issues have failed to meet the rising demand of thoughtful,



democratic citizenries. Smart strategy requires open debate and rigorous analysis, though national security establishments hesitate to acknowledge it. Impoverished analytic debate and poor strategic assessment can yield potential negative externalities, such as an escalating arms race and conflict that can disrupt future prosperity for entire generations on the subcontinent.

**Online Opportunities in**

*South Asia: In the past 20 years, the Internet emerged as a powerful tool to redress market failures and bridge information imbalances in areas such as banking and lending, health care, democratic accountability, and even distance learning and education. Massive open online courses (MOOCs) lower the barriers for education and help build a more knowledgeable citizenry on topics from math and engineering, to foreign languages and social sciences. Such open online courses might even inform other areas such as national security and nuclear issues to dampen potential arms races and conflict spirals.*

Potential reach is growing as internet and mobile connectivity has rapidly increased in South Asia in recent years. Data from the World Bank show that from 2010 to 2014, Internet users more than doubled in India and almost doubled in Pakistan. In the same time period, mobile cellular subscriptions covered 74.5 percent of the population in India and 73.3 percent in Pakistan. Increasing smartphone penetration in both India and Pakistan, combined with easy-to-use, free online educational platforms, offers a unique opportunity to transform these specialized dialogues.

Though MOOCs continue to grow in terms of offerings and users, trend lines over the past three

years suggest interest has begun to decline. Part of this has to do with rather low completion rates among those enrolled in courses as well concerns about efficacy of a passive learning environment. While some criticisms are valid, access to courses may still be better than none at all. MOOCs are

**Smart strategy requires open debate and rigorous analysis, though national security establishments hesitate to acknowledge it. Impoverished analytic debate and poor strategic assessment can yield potential negative externalities, such as an escalating arms race and conflict that can disrupt future prosperity for entire generations on the subcontinent.**

also a useful means to enrich discourses across borders on thorny issues, like nuclear security, that would otherwise be limited by available platforms. For its part, MIT, the pioneer of open online courses, is taking this educational medium seriously enough to consider factoring in online courses into its

admissions process.

More importantly, demographic data on MOOCs is particularly encouraging. South Asians have some of the highest enrollment numbers and review rates—that is, the amount of material reviews in a course, especially in social science courses. These statistics provide grounds for optimism that courses on international security

and nuclear deterrence issues can fill critical voids and find an interested and receptive audience in Pakistan and India.

**Nuclear weapons have helped deter nuclear wars and full-scale conventional wars between nuclear-armed states. It is unclear, however, whether they have deterred sub-conventional threats, internal security challenges or territorial incursions. They may also usher in new security risks, intensify crises, and impose long-term economic and environmental costs for a country.**

**Nuclear Learning:** Nuclear learning requires a clear-eyed understanding of nuclear history, conflict and geopolitics. Nuclear weapons have helped deter nuclear wars and full-

scale conventional wars between nuclear-armed states. It is unclear, however, whether they have deterred sub-conventional threats, internal security challenges or territorial incursions. They may also usher in new security risks, intensify crises, and impose long-term economic and environmental costs for a country. Countries that develop or possess nuclear technology and weapons can best be served by a vibrant civic

debate that wrestles with these costs and benefits.

Online platforms can provide the requisite nuclear education to fuel these discussions and can yield multiple benefits: First, by opening up a conversation and making it accessible to new people—young and old—online learning can improve nuclear literacy in civil society and help revitalize the study of nuclear security issues in South Asia. Second, by encouraging a broader set of angles and perspectives, it enhances the quality of existing curriculums, helping foster balanced nuclear learning, even wisdom. Third, online forums help collapse the distance between students and teachers throughout South Asia and connect potential colleagues around the world. Finally, scrutiny and debate of strategic orthodoxy can foster strategic introspection among leadership, uncover innovative approaches to mitigate nuclear dangers and contribute to regional stability.

Source: <http://www.brinknews.com>, 05 August 2016.

**OPINION – Elizabeth Renzetti**

**Nuclear Disarmament: Back on Centre Stage**

Could Donald Trump accidentally be the best friend of the nuclear disarmament movement? This may sound like *Dr. Strangelove*-level madness, but the prospect of the Republican presidential candidate anywhere near the nuclear launch codes could be a pivotal movement for public awareness, and it comes at a critical time for the movement to ban those weapons.

Consider, first, that the disarmament movement, although well-organized and determined, has done its important work largely in the dark for the past three decades. It's just not an issue that electrifies the public, even if it should. As former US defence secretary William Perry writes in his recent book, *My Journey at the Nuclear Brink*, "Our chief

peril is that the poised nuclear doom, much of it hidden beneath the seas and in remote badlands, is too far out of the global public consciousness. Passivity shows broadly."

Now, consider that Mr. Trump has made this existential threat – Russia and the US each have nearly 2,000 weapons deployed and ready to launch – not so much theoretical as terrifyingly real. MSNBC host Joe Scarborough created a stir when he said he had heard that a "foreign policy expert" was briefing Mr. Trump, and the

presidential candidate mentioned nuclear weapons, asking, "If we have them, why can't we use them?"

Cue gasps around the world. The Trump campaign has since denied the exchange took place. But they can't deny that Mr. Trump did not

know, in December, what the nuclear triad of US defence constituted (it's the delivery system of missiles, bombers and submarines.) In March, at an MSNBC town hall, Mr. Trump uttered the jaw-dropping statement, "Somebody hits us within ISIS, you wouldn't fight back with a nuke?" There is an upside to this bizarre ignorance about the most destructive weapons the planet has ever known, which is that people may become properly terrified and do something about it. As Hillary Clinton said, "A man you can bait with a tweet is not a man we can trust with nuclear weapons."

This is a critical moment for the disarmament movement, and activists in Canada and abroad are pushing for broad public support for a nuclear ban. In September, the UN' open-ended working group on nuclear disarmament will present its final report, hopefully laying out a path toward a convention banning these weapons for good. The eight nuclear powers (North Korea is the ninth) will try to block this. Canada, which has traditionally sided with it large and domineering American friend on nuclear-arms issues at the UN, could instead take a leading and ground-breaking role toward a more stable and peaceful world, as

**There is an upside to this bizarre ignorance about the most destructive weapons the planet has ever known, which is that people may become properly terrified and do something about it. As Hillary Clinton said, "A man you can bait with a tweet is not a man we can trust with nuclear weapons."**

it did with the Ottawa Treaty banning landmines in 1997. (In 2015, Canada was one of only 29 countries refusing to endorse a humanitarian pledge to seek a weapons treaty at the UN, along with the US and Britain, also a nuclear power. Meanwhile 139 countries supported the pledge. Seventeen abstained, including the nuclear states India, Pakistan and China.)

More than 800 members of the Order of Canada have supported the campaign by Canadians for a Nuclear Weapons Convention, and the group Science for Peace has started a national letter-writing campaign to persuade Canadian lawmakers. This may take some doing: In a letter to the president of Science for Peace, Foreign Affairs Minister Stéphane Dion wrote, in part: "Canada supports practical and politically viable approaches to nuclear disarmament that are inclusive of all stakeholders, especially the nuclear-weapons states."

In other words, don't hold your breath. As long as the disarmament issue remains at the back of the public consciousness, nothing will change. In early August every year, the world briefly stops to remember the destruction of Hiroshima and Nagasaki, then moves on again. This might be changing, though: There were powerful protests in July as British lawmakers voted to renew the Trident nuclear submarine defence, and alarm bells when the failed Turkish coup threatened Incirlik Air Force base, where the US stores some of its nuclear weapons.

Mr. Trump's disastrous recklessness may cause people to reach for the smelling salts, but let's not forget that he is only a potential threat, while both Russia and the US are moving, in real time, to refurbish their nuclear arsenals. It's worth keeping in mind the words of Mr. Perry, who witnessed the devastation of Japan as a soldier stationed there after the Second World War: "I believe that the risk of a nuclear catastrophe today is greater than it was during the Cold War – and yet our public is blissfully unaware of the new nuclear dangers they face." That's a scary message, but fear can be a great motivator, at the right time.

*Source: <http://www.theglobeandmail.com>, 05 August 2016.*

## **NUCLEAR STRATEGY**

### **GENERAL**

#### **Castro Urges West Not to Subject Russia & China 'to Threats of Deploying Nuclear Weapons'**

Russia and China should not be "subjected to threats of deploying nuclear weapons," former Cuban President Fidel Castro said in a letter published on his 90th birthday, urging for peace. The iconic socialist leader stressed that no world power has the right to kill millions of people.

... "Great powers like China and Russia can't be subjected to threats of deploying nuclear weapons. They are people of great courage and intelligence," Castro said in his letter.... "Mankind is faced today with the greatest danger in its history," he wrote. "We must preserve peace around the world and must not let any world power believe it has the right to kill millions of human beings," Castro added.

The former Cuban president also took the opportunity to slam a speech US President Barack Obama made in Hiroshima during a May trip to Japan in which he failed to apologize to the Japanese people. "I believe that the speech lacked apologetic words for the killing of hundreds of thousands of people in Hiroshima, although he knew about the effects of the bomb. The attack on Nagasaki was equally criminal," Castro said.

*Source: <https://www.rt.com/news/355887-castro-letter-birthday-nukes/>, 14 August 2016.*

### **USA**

#### **Proposed US 'NFU' Nuclear Weapon Protocol Meets Resistance**

A proposal under consideration at the White House to reverse decades of US nuclear policy by declaring a "No First Use" protocol for nuclear weapons has run into opposition from top cabinet officials and US allies. The opposition, from Secretary of State John Kerry, Secretary of Defense Ash Carter and Secretary of Energy Ernest Moniz, as well as allies in Europe and Asia, leaves President Barack Obama with few ambitious options to enhance his nuclear

disarmament agenda before leaving office, unless he wants to override the dissent.

The possibility of a “No First Use” declaration – which would see the US explicitly rule out a first strike with a nuclear weapon in any conflict – met resistance at a National Security Council meeting in July, where the Obama administration reviewed possible nuclear disarmament initiatives it could roll out before the end of the president’s term.

During the discussions, Kerry cited concerns raised by US allies that rely on the American nuclear triad for their security, according to people familiar with the talks. The U.K., France, Japan and South Korea have expressed reservations about a “No First Use” declaration, people familiar with their positions said. Germany has also raised concerns, one of the people said.

Carter raised objections to the “No First Use” declaration on the grounds that it risked provoking insecurity about the US deterrent among allies, some of which then could pursue their own nuclear programs in response, according to the people familiar with the discussions. North Korea’s nuclear ambitions and Russia’s actions in Europe have also complicated any change to the US nuclear posture for the Pentagon.

Source: <http://www.marketwatch.com>, 13 August 2016.

### **Navy Builds Nuclear Missile Submarine Tubes**

The Navy has begun early construction and prototyping on a new class of nuclear-armed ballistic missile submarines designed to help ensure global peace by deploying massive

destructive power under the sea. The Ohio Replacement Program, a so-called SSBN,

is scheduled to begin construction by 2021. Requirements work, technical specifications and early prototyping have already been underway at GE Electric Boat. Designed to be 560-foot– long and house 16 Trident II D5 missiles fired from 44-foot-long missile tubes, ORP will

be engineered as a stealthy, high-tech nuclear deterrent able to quietly patrol the global undersea domain.

“This platform is being designed for 42 years of service life. It has to survive into the 2080s and it has to provide a survivable, credible deterrent threat,” Capt. David Goggins, Ohio Replacement Program Manager, told Scout Warrior in an interview. Construction on the first submarine in this new class is slated to be finished up by 2028, with initial combat patrols beginning in 2031, he

added. Ultimately, the Navy hopes to build and operate as many as 12 new nuclear-armed submarines, to be in service by the early 2040s and serve well into the 2080s. The ship specifications have been completed and the program is preparing for a detailed design phase and initial production contract, Goggins explained. “I have to make sure I have a detailed manufacturing plan that is executable. Now I’m working on the detailed construction plan,” Goggins said.

**Strategic Nuclear Deterrence:** Navy officials explain that the Ohio Replacement submarines’ mission is one of nuclear deterrence. Detailed design for the first Ohio Replacement Program is slated for 2017. The new submarines are being engineered to quietly patrol the undersea domain and function as a crucial strategic deterrent, assuring a second

**Kerry cited concerns raised by US allies that rely on the American nuclear triad for their security, according to people familiar with the talks. The U.K., France, Japan and South Korea have expressed reservations about a “No First Use” declaration, people familiar with their positions said. Germany has also raised concerns, one of the people said.**

**Ohio Replacement submarines’ mission is one of nuclear deterrence. Detailed design for the first Ohio Replacement Program is slated for 2017. The new submarines are being engineered to quietly patrol the undersea domain and function as a crucial strategic deterrent, assuring a second strike or retaliatory nuclear capability in the event of nuclear attack. The Navy is only building 12 Ohio Replacement submarines to replace 14 existing Ohio-class nuclear-armed boats.**



strike or retaliatory nuclear capability in the event of nuclear attack. The Navy is only building 12 Ohio Replacement submarines to replace 14 existing Ohio-class nuclear-armed boats because the new submarines are being built with an improved nuclear core reactor that will better sustain the submarines, Navy officials have said.

As a result, the Ohio Replacement submarines will be able to serve a greater number of deployments than the ships they are replacing and not need a mid-life refueling in order to complete 42 years of service. "With the life of ship reactor core, you don't have a mid-life refueling. This allows our 12 SSBNs to have the same at sea presence as our current 14. That alone is a 40 billion savings in acquisition and life-cycle cost because you don't have those two additional platforms," Goggins said.

Electric Boat and the Navy are already progressing on early prototype work connecting missile tubes to portions of the hull, officials said. Called integrated tube and hull forging, the effort is designed to weld parts of the boat together and assess the ability to manufacture key parts of the submarine before final integration. In 2012, General Dynamics Electric Boat was awarded a five-year research and development deal for the Ohio Replacement submarines with a value up to \$1.85 billion. The contract contains specific incentives for lowering cost and increasing manufacturing efficiency, Navy and Electric Boat officials said.

The US and U.K. are together immersed in a common missile compartment effort for ORP. In fact, the US and U.K. are buying parts together for the common missile compartment and working on a \$770 million contract with General Dynamics' Electric Boat. The US plans to build 12 ORPs, each with 16 missile tubes, and the U.K. plans to build four nuclear-armed ballistic submarines, each with 12 missile tubes.

**Next-Generation Technology:** The ORP is being designed with a series of next-generation technologies, many of them from the Virginia-Class attack submarine. Leveraging existing systems from current attack submarines allows the ORP

program to integrate the most current technologies and systems while, at the same time, saving the developmental costs of beginning a new effort, Goggins explained. In particular, the ORP will utilize Virginia-class's fly-by-wire joystick control system and large-aperture bow array sonar. Sonar technology work by sending out an acoustic ping and then analyzing the return signal in order to discern shape, location or dimensions of an undersea threat.

... The submarines combat systems from Virginia-class attack submarines are also being integrated into the new Ohio Replacement Program submarines. The subs combat systems consist of "electronic surveillance measures," the periscope, radios and computer systems, Goggins explained. The new ORP subs will also utilize an automated control fly-by-wire navigation system, a technology that is also on the Virginia-Class attack submarines.

"The ship's control system allows the operator to put information into a computer about the course and depth for the submarine. A computer algorithm maintains that course and depth by sending a signal to the rudder and the stern," Goggins said. Goggins also explained that the shafts of the new submarines are being built to last up to 10 or 12 years in order to synchronize with the ships maintenance schedule. Existing shafts only last six to eight years, he explained.

The ORP will also use Virginia-class's next-generation communications system, antennas and mast. For instance, what used to be a periscope is now a camera mast connected to fiber-optic cable, enabling crew members in the submarine to see images without needing to stand beneath the periscope. This allows designers to move command and control areas to larger parts of the ship and still have access to images from the camera mast, Electric Boat and Navy officials said. The Ohio Replacement Program is also engineering a new electric motor for the submarine which will turn the shaft and the rotor for the propulsion system. The new motor will make propulsion more efficient and potentially bring tactical advantages as well, Goggins explained.

Lawmakers are working on a special fund created to pay for the Navy's expensive next-generation nuclear-armed ballistic missile submarines. Members of Congress have recently discussed the details of the National Sea-Based Deterrence Fund, a special effort established in 2015, at a recent hearing on the topic. The fund was established as a way to allocate specific acquisition dollars to pay for the new submarines. In total, the Navy hopes to buy 12 of the new submarines to serve into 2085 and beyond.

Production for the lead ship in a planned fleet of 12 Ohio Replacement submarines is expected to cost \$12.4 billion – \$4.8 billion in non-recurring engineering or development costs and \$7.6 billion in ship construction, Navy officials have said. The Navy hopes to build Ohio Replacement submarine numbers two through 12 for \$4.9 billion each in 2010 dollars.

Source: <http://www.scout.com/military/warrior/story/1693291-navy-builds-nuclear-missile-tubes-submarine>, 07 August 2016.

### USA Wants More Modern Nuclear Bombs in Germany

US President Barack Obama intended to make nuclear disarmament one of his government's goals. But now the US intends to modernize its nuclear weapons stationed in Germany, according to media reports. Germany's air force is preparing to adapt some of its Tornado warplanes to carry more up-to-date US atom bombs in light of plans by Washington to modernize its nuclear arsenal in Germany, media reported.

**The German newsmagazine "Spiegel" reported that US President Barack Obama had approved the last phase of development for the atom-bomb model B61-12, which is to go into full-scale production from 2020. Washington then intended to station some of the modernized weapons at the Büchel air base in Germany's western Eifel region.**

The German newsmagazine "Spiegel" reported that US President Barack Obama had approved the last phase of development for the atom-bomb model B61-12, which is to go into full-scale production from 2020. Washington then intended to station some of the modernized weapons at the Büchel air base in Germany's western Eifel region, according to the report.

**Cold War Legacy:** Experts estimate that 10 to 20

nuclear warheads from the Cold War period are currently stored in Büchel, with German Tornado warplanes standing by to carry them if it is deemed necessary. The area is under strict protection, with some US soldiers also stationed there.

Although the German parliament said in 2010 that it was in favor of having the weapons withdrawn, the government at the time, which consisted of Chancellor Angela Merkel's conservative CDU-CSU bloc and the liberal FDP, stated that this would not happen without the agreement of Germany's NATO allies. "Spiegel" reported that the US armed forces intended to modernize other elements of

their nuclear arsenal as well. The magazine reported that they had called on the arms industry to come up with proposals for a new generation of nuclear long-range missiles and cruise missiles by 2017.

**Threat from Russia?:** The plans come as Poland and Baltic states urge NATO to up its nuclear and other military deterrents in the face of what they see as Russia's territorial aggression. The plans for

**Poland and Baltic states urge NATO to up its nuclear and other military deterrents in the face of what they see as Russia's territorial aggression. The plans for modernization would seem to contradict US President Barack Obama's stated goal of nuclear disarmament, an objective he pledged to pursue at the start of his first term in office in 2009. Germany itself has pledged not to create nuclear weapons under the terms of the Nuclear Non-Proliferation Treaty.**

modernization would seem to contradict US President Barack Obama's stated goal of nuclear

disarmament, an objective he pledged to pursue at the start of his first term in office in 2009. Germany itself has pledged not to create nuclear weapons under the terms of the Nuclear Non-Proliferation Treaty.

Source: Timothy Jones, <http://www.dw.com>, 13 August 2016.

## **BALLISTIC MISSILE DEFENCE**

### **NORTH KOREA**

#### **North Korea Fires Ballistic Missile into Waters off Japan**

North Korea fired a ballistic missile into waters near Japan, a day after President Park Geun-hye of South Korea said her government remained firm in its plan to deploy an advanced American missile defence system despite protests at home and from China. The North Korean missile, a midrange Rodong missile, was fired from Eunyul, near the country's southwestern tip, at 7:50 a.m. It flew 620 miles before plunging into the sea between North Korea and Japan, the South Korean military said in a statement.

Japan's defence minister, Gen Nakatani, told reporters that the missile had landed about 155 miles off northern Japan, in international waters that the country claims under maritime law as part of its EEZ. It was the closest a North Korean missile had come to Japan since 1998, when Pyongyang launched one that flew over the country. The North's Rodong missile has a range of 800 miles, enough to target much of Japan, and the 620-mile flight was one of the longest yet for one of the country's missile tests. In the past, the North has seemed to take steps to keep its missiles from coming too close to Japan, presumably to avoid excessively provoking Tokyo. In June, for example, it launched a Musudan IRBM at a sharp angle, apparently to achieve a higher altitude and keep it from landing near Japan.

PM Shinzo Abe of Japan condemned the test as a "serious threat," saying, "That it landed in our

nation's EEZ makes it an intolerable act of recklessness." South Korea's military said Pyongyang's "provocative" launch was meant to send a signal to neighboring countries as well as the South. "By launching a ballistic missile that can be tipped with a nuclear warhead in the future, North Korea directly and blatantly demonstrated its provocative ambition to target seaports and airfields across South Korea and even its neighboring countries," the military's statement said.

The South Korean military and the US Strategic Command, which monitors North Korean missile tests, both said that the North had fired two missiles simultaneously, one of which exploded immediately after launch. The launch was the North's first ballistic missile test since it tested a Scud-type short-range missile and two midrange Rodong ballistic missiles on July 19. Those missiles flew from 310 to 370 miles, not far enough to reach Japan's exclusive economic zone, where the country claims exclusive rights to fishing, drilling and other economic activities.

... China, Russia and North Korea have all criticized the deployment, saying it represented a threat to their security, while the US, Japan and South Korea called for a better protection from North Korean threats. In a report issued on 2 August, Japan called North Korea's nuclear and missile development a "grave and imminent threat." The report said North Korea might have achieved the capability of miniaturizing atomic weapons for warheads, as well as having acquired a ballistic missile capable of reaching as far as 6,200 miles, enough to reach parts of the continental US.

Source: <http://www.nytimes.com>, 02 August 2016.

#### **China's Unease over High Altitude Defence System Thwarts Uncensored of North Korea Missile**

The UNSC has been unable to condemn the launch of a missile by North Korea that landed near Japan because China wanted the statement to oppose

**North had fired two missiles simultaneously, one of which exploded immediately after launch. The launch was the North's first ballistic missile test since it tested a Scud-type short-range missile and two midrange Rodong ballistic missiles on July 19. Those missiles flew from 310 to 370 miles, not far enough to reach Japan's exclusive economic zone.**

the planned deployment of a US BMD system in South Korea. North Korea launched a ballistic missile that landed in or near Japanese-controlled waters for the first time, the latest in a series of launches by the isolated country in defiance of UNSC resolutions.

The 15-member council held a closed-door meeting on the same day, but has been unable to agree on a US-drafted statement to condemn the launch, which was almost identical to two previous statements issued by the council on North Korea. China proposed that the statement also say "all relevant parties shall avoid taking any actions which could provoke each other and escalate tensions, and shall not deploy any new anti-ballistic missile stronghold in Northeast Asia with an excuse of dealing with threats of the DPRK nuclear and missile programs."

Beijing has said Washington's decision to deploy a THAAD system would only worsen tensions on the Korean peninsula. China's UN mission also did not want the statement to express concern that the missile landed near Japan, telling council diplomats in an email, seen by Reuters: "We believe that the response of the council is based on violation of Security Council resolutions, not the place where the missile impacted." Japan and the US said they could not accept the proposed changes to the draft by China and on 9 August dropped the bid for a Security Council statement. "To propose that this council should criticize purely defensive steps that states have taken to protect their people from the DPRK's clear and repeated ballistic missile threats ... would be manifestly inappropriate and would send entirely the wrong message to the DPRK," the US mission to the UN told council diplomats in an email.

After the Security Council meeting on 3 August, US Ambassador Samantha Power rejected suggestions the decision to deploy the anti-missile defense system in South Korea had provoked ballistic missile tests by North Korea. ...

Source: <http://indianexpress.com>, 10 August 2016.

## USA

### **Orbital ATK (OA) Awarded MDA Contract for Medium-Range Ballistic Missile Target Rockets**

Orbital ATK, a global leader in aerospace and defense technologies, has been awarded a major new contract by the US MDA to supply medium-range target rockets to support the testing of the country's missile defense systems. The company was awarded a development and production contract under the MRBM Type 3 Configuration 2 target program, which carries a firm value of \$182 million and a total value of up to \$400 million if all options are executed. .... "These advanced medium-range targets will help MDA further validate the US' ability to defend deployed forces and allies against missile attack."

The MRBM T3c2 contract includes an initial \$182 million firm order for vehicle development and

production over a four-year period, as well as options for follow-on vehicle production and other activities through 2024 that could increase the total value of the contract to \$400 million. Orbital ATK primarily designs and produces its target vehicles

and missile defence interceptors at the company's engineering and manufacturing facility in Chandler, Arizona. Orbital ATK has designed and developed more than 200 targets over 30 years.

"This program capitalizes on our core competency of providing innovative rocket designs that use proven technology to fit our customer's needs," said Mark Ogren, Vice President of Business Development for Orbital ATK's Launch Vehicles Division. "We are proud to expand our targets rocket work with MDA on the MRBM T3c2 program." In its portfolio of targets, Orbital ATK also produces the Air-Launched IRBM target, the ICBM target and the PTV in support of MDA programs. In addition to its target vehicle programs, the company also provides the Orbital

**Beijing has said Washington's decision to deploy a THAAD system would only worsen tensions on the Korean peninsula. China's UN mission also did not want the statement to express concern that the missile landed near Japan.**



ATK Boost Vehicle interceptor for MDA as part of the agency's GMD industry team led by The Boeing Company.

Source: <http://www.streetinsider.com>, 08 August 2016.

**NUCLEAR ENERGY**

**BANGLADESH**

**Rooppur Nuclear Power Plant Will Use 'Safest Technology', Bangladesh AEC Chief Says**

Locals of the area will not have to move from the project area, he says, even if an accident happens. Zulquarnain's assurance about the safety features of the first nuclear power plant came at a programme at the commission on 9 August. An organisation named 'Star Trek Dream' organised it to mark the atomic bombings of Hiroshima and Nagasaki by the US in August 1945 during the World War II. BAERA Chairman Prof Naiyyum Choudhury was the chief guest at the event.

The nuclear power plant is being built with Russia's assistance at an estimated project cost of \$12.65 billion. Two units of the plant will generate 1,200 MW each. Russia will provide \$11.38 billion for the project and the Bangladesh government

**The nuclear power plant is being built with Russia's assistance at an estimated project cost of \$12.65 billion. Two units of the plant will generate 1,200 MW each. Russia will provide \$11.38 billion for the project and the Bangladesh government the rest.**

the rest. Prime Minister Sheikh Hasina laid the foundation stone of the project in 2013, with 2021 targeted for the launch of the first unit. But many in Bangladesh are worried following the horrifying aftermaths of accidents in nuclear plants around the world.

But the government said the Rooppur power plant will maintain all kinds of safety measures. Defending the decision to go for a nuclear-powered plant, BAEC chief Zulquarnain brought up issue of the growing demand for power. "Our gas reserves are running out. That's why we'll have to go for nuclear energy." The plant will cost more at first, but the overall costs will come down due to long-term power generation, he said. ...

Source: <http://bdnews24.com>, 10 August 2016.

**IRAN**

**Obama Admin Gives Green Light for Iran to Build Two New Nuclear Plants**

Iran is permitted to pursue the construction of two newly announced nuclear plants under the parameters of last summer's nuclear agreement, Obama administration officials informed the Washington Free Beacon, setting the stage for Tehran to move forward with construction following orders from President Hassan Rouhani.

Ali Salehi, Iran's top nuclear official, announced that Iran has invested \$10 billion into the construction of two new nuclear plants after receiving orders from Rouhani, according to reports in Iran's state-controlled media. A State Department official said to the Free Beacon following the announcement that Iran is allowed to move forward with this venture under the nuclear agreement, which does not prohibit this

type of nuclear construction. "The [nuclear deal] does not prevent Iran from pursuing new light-water reactors," a State Department official not authorized to speak on record said to the Free Beacon in response to questions about Iran's latest announcement. "Any new

nuclear reactors in Iran will be subject to its safeguards obligations." ...

Source: Adam Kredo, <http://freebeacon.com>, 12 August 2016.

**JAPAN**

**Japan Brings Ikata Nuclear Plant Back Online**

Japan has restarted a nuclear reactor despite a court challenge by local residents. The atomic plant was one of dozens shut down in wake of the 2011 Fukushima disaster. Plant operator Shikoku Electric Power said it switched on the No. 3 reactor at its Ikata nuclear power plant in Ehime prefecture, about 700 kms (430 miles) southwest of Tokyo.

Japan ended nearly two years without nuclear power a year ago when Kyushu Electric Power restarted reactors on the southern island of Kyushu. The island nation now has three operating reactors despite public skepticism following the disastrous 2011 Fukushima meltdowns that led to calls for Japan to phase out nuclear power. The reactor is expected to start generating electricity and resume commercial operation in September in its first use since it was suspended in April 2011.

But furious local residents vowed to fight on. ... Prime Minister Shinzo Abe and utility companies have been pushing to get reactors back in operation despite public worries over the safety of nuclear power and fears about radiation exposure. In April, a court ruled that Japan's only two working nuclear reactors could remain online, rejecting an appeal by residents who said tougher post-Fukushima safety rules were not adequate. Two other reactors in central Japan had also been restarted before a court in March ordered them back offline following a successful legal challenge. ...

Source: <http://www.dw.com>, 12 August 2016.

## **SOUTH AFRICA**

### **Eskom's Nuclear Energy Plan Remains on the Cards**

Eskom CEO Brian Molefe will be attending conferences across the world in the next few months to learn more about nuclear energy. Earlier this year Molefe made it clear South Africa can't do without nuclear energy in the future, saying it's the cheapest option to keep up with growing power demands. This 9<sup>th</sup> August marks exactly one year since the power utility last implemented load shedding. The focus since Molefe was appointed as CEO in 2015 has been on maintaining power plants and fast tracking Eskom's build programme which includes the possibility of building a nuclear power station in the future.

Meanwhile, Eskom says that negotiations to bring an end to the strike at four of its power stations have hit a deadlock. Workers affiliated with the National Union of Mineworkers downed tolls at the Thuthuka, Matla, Dover and Arnot power stations embarked on a strike over wages. The workers are reportedly not happy with the wages offered by Eskom. Eskom's Khulu Phasiwe says: "The wage negotiations, contrary to what the ADM have been saying has not actually collapsed. We have a deadlock and obviously it does not necessarily mean that people have to harden their position. The negotiations still are open. We are going to meet again very soon."

Source: <http://ewn.co.za>, 09 August 2016.

## **USA**

### **Advancing Virginia's Nuclear Industry**

**The island nation now has three operating reactors despite public skepticism following the disastrous 2011 Fukushima meltdowns that led to calls for Japan to phase out nuclear power. The reactor is expected to start generating electricity and resume commercial operation in September.**

The Virginia Nuclear Energy Consortium and the Center for Advanced Engineering and Research announced a plan to work together in a joint effort to bring more nuclear research dollars into Virginia and create more nuclear workforce opportunities. The two organizations said in a

signed memorandum of understanding that they would conduct initiatives related to research projects, education and training programs, new nuclear technologies, and job opportunities bringing nuclear-related businesses into Virginia.

"This agreement will help us ensure government, academic institutions, and private commercial entities make the most of Virginia's capabilities for contributing to the next generation of nuclear technology and education, opening doors for additional research funding, creating opportunities for new jobs, and launching new businesses in the commonwealth," Sama Bilbao y León, director of nuclear engineering programs at VCU and chairman of VNEC, said in a statement. Discussing the details of the memorandum, VNEC Executive Director Marshall Cohen said, "This [agreement] builds upon actions by the Virginia legislature earlier this year to provide additional support for the CAER and upon the historical support of the

CAER by the Virginia Tobacco Region Revitalization Commission.”

The agreement spells out specific processes for joint programs and identifies some specific areas on which the two organizations will work together. These will include promotion of Virginia’s research facilities and capabilities, efforts to train and attract job seekers in nuclear fields, and increasing educational opportunities. Bob Bailey, executive director of CAER stated, “Combining the powerful VNEC brand with the CAER research capabilities enables CAER to expand its research base not only statewide in Virginia, but with important agencies such as the US DoE, the NRC, the Electric Power Research Institute and others.”

The VNEC, created in 2015, seeks to facilitate, encourage and advance the nuclear industry in Virginia through collaboration among industry participants, colleges and universities and not-for-profits in areas of need and interest to its members. The CAER is a nonprofit organization that creates working relationships between high-tech industries, major R&D centers and university researchers, and facilitates professional development opportunities for scientists and engineers in the region. Its 30,000 square-foot research and education facility, located in the New London Business and Technology Center in Bedford County, will serve as the region’s source for industry innovation.

Source: <http://www.virginiabusiness.com>, 08 August 2016.

## URANIUM PRODUCTION

### UKRAINE

#### Westinghouse Advances in Ukraine’s Nuclear Fuel Market

To hear some Ukrainian politicians talk, it might seem like Westinghouse Electric Co. is a household name in the former Soviet republic – a trusted business partner picking up the nuclear pieces of Ukraine’s unravelled bonds to Russia. Just because it’s exaggerated doesn’t make Westinghouse’s ascent in Ukraine any less significant for either

side. For decades, all 15 of Ukraine’s Russian-style reactors were using 100 percent Russian-made fuel. Today, there are Westinghouse fuel assemblies in three of them. Next year, it could be six, and the country’s energy officials have said they want Westinghouse’s share to be 30 percent.

Western fuel has nudged the monopoly of TVEL, the nuclear fuel fabrication arm of Russia’s state-owned nuclear company Rosatom, which is the culmination of more than a decade of diplomacy and a few commercial setbacks. The US DoE helped open the door for Westinghouse in Ukraine to pilot a new type of fuel for the

company starting in 2005 – specifically designed for Russian reactors. Cranberry-based Westinghouse first tested fuel for a Russian reactor in Czech Republic in 2000 but the trial ran into technical issues. In 2009, TVEL regained the country’s nuclear fuel

business. A Russian-designed nuclear power plant in Finland that ran on a different type of Westinghouse fuel a decade ago also awarded a subsequent contract to the Russian firm.

When news of technical problems surfaced in Ukraine several years ago – TVEL claimed Westinghouse’s fuel had design flaws while Westinghouse, whose pilot fuel was co-loaded into the reactor core with TVEL’s said the Russian product was deforming its own – it looked like Westinghouse’s ambitions for supplying Russian-made reactors were in danger. In 2012, Ukrainian utility National Nuclear Energy Company Energoatom asked Westinghouse’s to make certain design modifications after some of its fuel assemblies were found to have deformed. Negotiations were ongoing between Energoatom and Westinghouse to spread its fuel to more reactors....

**Fuel Factory:** Over the past month, Ukraine’s coal and energy minister Ihor Nasalyk has twice announced that Westinghouse is ready to build a nuclear fuel factory in Ukraine. Westinghouse, however, has made no such announcement. When asked, spokeswoman Courtney Boone said

**When news of technical problems surfaced in Ukraine several years ago – TVEL claimed Westinghouse’s fuel had design flaws while Westinghouse, whose pilot fuel was co-loaded into the reactor core with TVEL’s said the Russian product was deforming its own.**

the company has plenty of capacity at its Swedish factory to make fuel for its Ukrainian contracts. "Ukrainian political statements have been sort of all over the place recently," Ms. Bryndza said. "And they're politically driven."

That's because in 2010, Energoatom and TVEL formed a joint venture to build a nuclear fuel factory in Ukraine that would produce the Russian-designed fuel. Some construction was under way when the conflict in Crimea broke out in 2014. In 2015, Ukraine broke the contract with Russia and the project stalled. But for Westinghouse to take over the project doesn't make economic sense, Ms. Bryndza said. Furthermore, even the goal of Westinghouse supplying 30 percent of nuclear fuel might be a stretch, she said, as TVEL has a long-term contract with Energoatom that limits how much foreign fuel can be used.

But there might be other opportunities. When Ukraine cancelled Russia's participation in the fuel factory, it also terminated its contract to build out two reactors. That's the kind of business that Westinghouse and French-company Areva would like to get their hands on, Ms. Bryndza said, although its questionable whether that project will proceed because Ukraine doesn't have the money nor the need for more electricity in that part of the country. "More promising is work with the existing fleet in Ukraine," she said. In March, Westinghouse signed an agreement "to explore cooperation" on such work. It also announced that Ukraine would be using Westinghouse software to monitor its reactor cores.

... Mr. Marano estimated that Westinghouse has up to 85 percent of the market share for nuclear fuel in the US. It will take years for TVEL to qualify and license its fuel in the US, he predicted. "It's a free market and we welcome competition," Mr. Roderick said. "We will make sure it's fair competition and then we'll let the technology win at the end of the day."

*Source: <http://powersource.post-gazette.com>, 08 August 2016.*

## NUCLEAR COOPERATION

### BOLIVIA–RUSSIA

#### **Research Center Contracts Signed for Rosatom-Build in Bolivia**

Bolivia's Nuclear Energy Agency and Russian nuclear power corporation Rosatom have signed contracts that officially launches the construction of a \$300 million nuclear research and technology centre that will advance Bolivia's nuclear power ambitions. Bolivia and Russia announced intentions to build a research centre in October 2015. The contract signing allows for work to begin at a 50-acre site in the industrial city of El Alto 4,100 meters above sea level (13,451 feet), which will make it the highest altitude of any significant nuclear research facility.

"These contracts that were signed on 8 August mark the launch of actual work on the Centre construction. The site survey means direct access to the site in order to collect data needed for the design and construction of the facility," said Rosatom State Atomic Energy Corporation First Deputy Chief Executive for Corporate Development Kirill Komarov. Long term plans include construction of a cyclotron for use in radiopharmaceuticals and a gamma irradiation facility. The research center is to focus on nuclear research for medicinal, agricultural, geological and power generation uses. The Center is also to focus on training Bolivians on nuclear power generation. ...

*Source: <https://nuclearstreet.com>, 08 August 2016.*

### CAMBODIA–RUSSIA

#### **Cambodia, Russia Continue Discussing Nuclear Energy Plans**

A November pact with Russia that first raised the possibility of nuclear energy in Cambodia is still being quietly pursued. ... The second meeting of a Ministry of Interior working group dedicated to coordinating cooperation with the Vladimir Putin-led government in the realm of nuclear applications, ministry officials said. "There will be some follow up and discussion on how to implement the memoranda that were [finalised] in May," said Environment Ministry spokesman Sok Kean.



Russian Embassy representatives said the two countries plan to continue discussing ways to implement the memoranda and cooperate in the field of nuclear energy. "Right now, they are working on the implementation of these two memoranda. The first one was between Rosatom and the National Council of Sustainable Development, and the second for the establishment of an information centre for nuclear energy," said embassy press attaché Karina Orus-Ool.

Source: <http://www.phnompenhpost.com>, 12 August 2016.

## **INDIA-RUSSIA**

### **Russia, India Discuss Production of Components for Nuclear Fuel Reactors**

India might start production of components for nuclear fuel reactors of Russian design in the next 10 years, Vice-President of the Tvel – fuel company of Rosatom Oleg Grigoriev told TASS on 2 August. "Work on localization should be definitively linked to the schedule of expanding reactors of Russian design in India. Therefore, if all current plans for Russian units in India are implemented, I hope in the next 10 years first components produced in India will be used in fuel for Indian nuclear power plants," Grigoriev said. He noted that it should be preceded by adaptation of the law, and personnel training.

"The first steps have already been made," he said. "Of course, a lot will depend on regional specifics and peculiarities," he said. Grigoriev added that, despite the guarantee of uninterrupted supply of Russian nuclear fuel, Tvel is ready to support the efforts of Indian partners in the localization of part of its production in India. "We already have experience in conversion. We have repeatedly carried out economic calculations and estimates for volume of fuel to keep the plant cost-effective.

**Work on localization should be definitively linked to the schedule of expanding reactors of Russian design in India. Therefore, if all current plans for Russian units in India are implemented, I hope in the next 10 years first components produced in India will be used in fuel for Indian nuclear power plants.**

The number is around 10-12 energy blocks," he said. Grigoriev said that the question of localization of fuel assemblies – is not a current issue, but a matter for the medium term.

**NPP Equipment Localization Roadmap:** Russia and India will draft a roadmap for localization of NPP equipment shortly, Oleg Grigoryev said. "A detailed localization roadmap we are to follow will be developed and agreed by the parties in coming future," Grigoryev said. "Reasoning from our experience and understanding of stages, the work should most probably start from localization of components

for fuel assemblies. Final decision on localization depths, its timing and sequence is the subject matter of agreement with Indian partners," he added.

Source: <http://in.rbth.com>, 03 August 2016.

## **RUSSIA-IRAN**

### **Russia to Build 8 More N-Reactors in Iran**

Russia is set to build another eight NPP in Iran, Russian President Vladimir Putin said in an interview. These new reactors come on the heels of the 2013 delivery of the first Russian nuclear facility in the coastal city of Bushehr, in the Persian Gulf, Putin said during the interview published by Azerbaijani state news agency AzerTac. "Iran's first nuclear power plant, Bushehr, was built on the basis of Russian technologies," EFE news quoted Putin as saying. "Plans for the construction of 8 more nuclear power

units by Russian specialists in Iran have been agreed," he added.

... Putin's visit to the Azerbaijani capital included a bilateral meeting with his Iranian counterpart, where they discussed in detail their joint work in the field of peaceful nuclear energy. Russia, added

**Putin's visit to the Azerbaijani capital included a bilateral meeting with his Iranian counterpart, where they discussed in detail their joint work in the field of peaceful nuclear energy. Russia, added Putin, "will further assist our Iranian partners in implementing the Plan of Action on Iran's nuclear program, including the processing of enriched uranium and the conversion of facilities to produce stable isotopes.**

Putin, "will further assist our Iranian partners in implementing the Plan of Action on Iran's nuclear program, including the processing of enriched uranium and the conversion of facilities to produce stable isotopes." The Rosatom, has already begun work on Bushehr's second NPP, which is expected to have a similar 1,000 mW output. ...

Source: <http://www.business-standard.com>, 05 August 2016.

## **NUCLEAR PROLIFERATION**

### **CHINA-PAKISTAN**

#### **China Says its Nuclear Cooperation with Pakistan Under NSG Norms**

Defending its nuclear cooperation with its close ally Pakistan, China said its supply of reactors to Islamabad were in accordance with the principles of NSG and under the supervision of UN's nuclear watchdog. Refuting a US think tank report which said that China's nuclear cooperation with Pakistan was in contravention with the NSG principles, Chinese Foreign Ministry spokesperson, Hua Chunying said China-Pakistan cooperation is in accordance with the 48-member nuclear club, which supervises global nuclear commerce.

"China has stated on many occasions that the cooperation between China and Pakistan in the civil nuclear energy sector is completely for peaceful purpose," Hua said. "Such cooperation is subject to the safeguards and supervision of the IAEA and in accordance with the NSG's principles and the international obligations assumed by the two countries," Hua told reporters.

The ACA has expressed concern over export of nuclear materials by China to Pakistan saying that it is in violation of international norms and established procedures. "China has taken significant steps over the past several years to strengthen its export controls. However, Beijing's

decision to continue selling nuclear reactors to Pakistan in contravention of NSG and its sales of missile technologies to countries of concern earns China a failing grade," the ACA report said.

In its updated report card 2013-2016 'Assessing Progress on Nuclear Non-proliferation and Disarmament', ACA gave China a failing "F Grade" on nuclear weapons related export control. China had joined the NSG in 2004 and its national export controls include provisions related to export licensing, control lists, end-user controls, and import controls. At the IAEA General Conference in 2015, China had said it carried out "stringent reviews" on its export controls and adjusts its trigger lists according to technical progress.

**China has taken significant steps over the past several years to strengthen its export controls. However, Beijing's decision to continue selling nuclear reactors to Pakistan in contravention of NSG and its sales of missile technologies to countries of concern earns China a failing grade.**

In March 2016, Beijing said it started to implement the Nuclear Export Control List that was updated in January 2016. "Despite progress on its export controls China continues to supply Pakistan with nuclear power reactors, despite objections that the sale of the reactors did not

receive a consensus exemption from the NSG," the report said. "Pakistan, which is neither an NPT member nor under full-scope IAEA safeguards, is therefore ineligible to receive such assistance under NSG rules," it argued.

ACA observations about the consensus and NPT were significant as China blocked India's application to join NSG in the recent NSG Plenary meeting in Seoul despite the support of majority of its members, saying that it lacked the mandatory requirement of consensus among the group. China also said India was not a signatory to NPT, yet another obligatory requirement to join the NSG. In defence of its continued supply of nuclear reactors to Pakistan, China argues that they were part of the decision reached before it joined the NSG. "China has argued that the reactor transfer was based on a contract negotiated with Pakistan in 2003, one year before Beijing joined the NSG, and grandfathered in when China joined

the regime," the ACA report said.

"However, the 2003 exemption was widely understood to apply solely to the two nuclear power reactors whose sale was completed before China's acceptance into the NSG in 2004," the report said. In February 2015, Wang Xiaotao, vice-minister of the China's planning body the NDRC said China had assisted Pakistan to build six nuclear reactors with a total installed capacity of 3.4 million kws amid Beijing's plans to build two 1100 mw reactors in Karachi with \$6.5 billion assistance.

It was the first detailed disclosure by a Chinese official about China's supply of reactors to Pakistan which remained under wraps for long. China had built two 300 mw reactors at Chasma in Punjab followed by two 320 mw units at the same place. It is currently building two 1100 mw reactors in Karachi at a cost of \$6.5 billion, saying they are aimed at easing power problems in Pakistan. India and the US have expressed concerns over it and said the reactors were being built without the sanction of the NSG. While India has secured the NSG waiver after the India-US civil nuclear deal in 2008 to get more nuclear reactors and fuel, Pakistan has not got any such exemption.

China which is rapidly expanding its nuclear reactors domestically to reduce dependence on coal is now aggressively marketing its newly acquired nuclear technology to build 1100 mw reactors abroad. Besides Pakistan, China signed an agreement to build a pressurised water reactor nuclear power plant in Argentina. ... According to a report released in 2016, China had 27 nuclear power generating units

in operation as of the end of October 2015, with a total installed capacity of 25.5 GW, while another 25 units with a total installed capacity of 27.51 GW under construction. The world's second largest economy plans to raise its installed nuclear power capacity to 58 GW with an additional 30 GW under construction by 2020 and build itself into a strong nuclear power country by 2030.

**China which is rapidly expanding its nuclear reactors domestically to reduce dependence on coal is now aggressively marketing its newly acquired nuclear technology to build 1100 mw reactors abroad. Besides Pakistan, China signed an agreement to build a pressurised water reactor nuclear power plant in Argentina.**

Source: <http://indianexpress.com>, 04 August 2016.

## **IRAN**

### **Financial Sanctions Notice on Iran**

A notice updating the HM Treasury's Consolidated List regarding three entities listed under Council Regulation (EU) 267/2012, which imposes financial sanctions against Iran, was published on 3<sup>rd</sup> August. This notice removes the asset freeze against the below three Iranian entities, following Judgments of the General Court of the European Union.

**The Court held that the Council had failed to establish that these companies provided support for nuclear proliferation, noting that the mere risk of involvement in proliferation in the future is insufficient and that there must be evidence of actual past involvement. In its second judgment, the General Court annulled the entries of a further 35 companies.**

These three entities were initially listed on 26 July 2010 by virtue of being owned or controlled by Islamic Republic of Iran Shipping Lines. In its first Judgment, the General Court concluded that the European Council did not adduce sufficient evidence to support its reasons for listing IRISL or 17 other companies that had been

listed by virtue of being entities owned or controlled by IRISL. The Court held that the Council had failed to establish that these companies provided support for nuclear proliferation, noting that the mere risk of involvement in proliferation in the future is insufficient and that there must be evidence of actual past involvement.

In its second judgment, the General Court annulled the entries of a further 35 companies. The Court noted that since it had annulled IRISL's listing in the first Judgment (and as this Judgment had not been appealed), the Council could not maintain entries against any entity that had been listed on the sole grounds of being owned or controlled by IRISL. The annulment orders by the General Court in both cases had a retroactive effect.

There has been a delay between the annulment order and de-listing of the above entities as the order takes effect once the period for the European Council to appeal has expired (2 months and 10 days from the date of the judgments). It is worth noting that the initial listings, undertaken in 2010, of IRISL and of the entities owned or controlled by IRISL occurred when the designation criteria required some form of support for nuclear proliferation. Later criteria have been significantly broader and IRISL and several of its subsidiaries, including IRISL Club and IRISL Multimodal Transport Company, were re-listed on new grounds in late 2013. In addition, despite being removed from the HM Treasury's Consolidated List as per the above, both IRISL Club and IRISL Multimodal Transport Company are still listed on the UK BIS Iran List

Source: <http://www.lexology.com>, 04 August 2016.

## **NUCLEAR DISARMAMENT**

### **GENERAL**

#### **Nagasaki Mayor Urges World to Use Collective Wisdom to Abolish Nuclear Weapons**

Nagasaki Mayor Tomihisa Taue urged the international community to draw upon its "collective wisdom" to realize a world without nuclear weapons, as the city marked the 71st anniversary of its atomic bombing by the US in the final stages of World War II. In his Peace Declaration delivered at an annual ceremony in the city's Peace Park, Taue said new frameworks aimed at containing nuclear proliferation are necessary if mankind is to be prevented from destroying its future. "Now is the time for all of you to bring together as much of your collective

wisdom as you possibly can, and act," he said.

Touching on a UN working group on nuclear disarmament being held in Geneva, Taue said the creation of the forum to recommend legal measures to bring about nuclear weapons abolition is "a huge step forward." But noting the absence of many of the nuclear powers at the debate, he said that without their participation, the discussions "will end without the creation of a road map for nuclear weapons abolition." Compared to a similar declaration issued by Hiroshima Mayor Kazumi Matsui three days earlier on the occasion of his city's own anniversary of its 1945 atomic bombing by the US, Taue was more blunt in both his suggestions for steps to achieve a nuclear-free world and his criticism of the Japanese government.

Taue criticized Japan's policy of advocating the elimination of nuclear weapons while relying on the US for nuclear deterrence, calling it "contradictory." He also urged the government to enshrine into law its three non-nuclear principles of not producing, possessing or allowing nuclear weapons on Japanese territory, which are currently non-binding. He further pressed the government to work to create what he called a "Northeast Asia Nuclear Weapons-Free Zone" as a security framework that does not rely on nuclear deterrence.

Prime Minister Shinzo Abe, in his speech, vowed to continue to make various efforts to bring about a "world free of nuclear weapons," without referring to any concrete steps. His statements were almost identical to those he delivered during a similar ceremony in Hiroshim. Taue touched on the significance of US President Barack Obama's historic visit to Hiroshima in May, and called on the leaders of every country to visit Nagasaki and Hiroshima to see the reality of atomic bombings.

Through his visit, the president exhibited to the world "the importance of seeing, listening, and feeling things for oneself," Taue said, adding, "Knowing the facts becomes the starting point for thinking about a future free of nuclear weapons." Obama was the first sitting US president to visit Hiroshima. Taue, meanwhile,



called on younger generations to listen to the testimonies of atomic-bomb survivors. He also expressed his support for areas affected by the 2011 Fukushima No. 1 nuclear power plant disaster. ...

Source: <http://www.japantimes.co.jp>, 09 August 2016.

## **INDIA**

### **As Obama Seeks UNSC Resolution to Support CTBT, India Keeps its Options Open**

As US President Barack Obama counts down his days in office, efforts to burnish his legacy with a re-look at the nuclear test ban treaty could have implications for India. Two suggestions emanating from the White House – the adoption of a no-first use position in the US's nuclear posture and a UN Security Council resolution calling for the early entry into force of the CTBT – have stirred fierce emotions among Republicans. But while the first looks like a non-starter, the plan for a UNSC resolution in time for the 20th anniversary of the CTBT in September may have more legs. The treaty opened for signature on September 24, 1996.

US national security council spokesperson Ned Price told the *Washington Post* that the Obama administration is “looking at possible action in the UN Security Council that would call on states not to test and support the CTBT’s objectives”. ... South Block sources indicated that New Delhi is aware of the proposal, but until a draft resolution is actually on the table, it will not start framing a position. As per media reports, the draft resolution will “reinforce norm[s] against nuclear testing”, underscore the value of the 1996 CTBT and also the international monitoring system to detect clandestine testing”. There will, however, be “no legally binding obligations”.

**Seeking a Lasting Legacy:** India never signed onto the CTBT, with Arundhati Ghose, who was its permanent representative to the UN in Geneva in

1996, famously stating the country's decision by saying, “not now, not later”. Nevertheless, the UN General Assembly overwhelmingly voted to adopt the treaty and it was opened for signatures on September 24, 1996.

Twenty years and 164 signatories later, the treaty has yet to take effect formally. The key wrinkle has been Article 14, which India vehemently opposed during negotiations in 1995-96, stating that it couldn't be coerced into signing an international pact and that the article was thus against international law. The language in question stipulates that the treaty will only enter into force after 44 nuclear-capable countries – listed in an annexe to the treaty – sign and ratify the pact. Among the Annexe 2 countries, India,

North Korea and Pakistan have all refrained from signing the CTBT. Five others – the US, China, Egypt, Iran, and Israel – have signed but not ratified the treaty.

In October 1999, the US Senate rejected the treaty,

voting largely along partisan lines. At the time, Republicans expressed concerns over the integrity of maintaining stewardship of the proposed nuclear weapon stockpile without any explosive testing and verification of the weapons. Ten years later, Obama, while in Prague in 2009, said his administration would “immediately and aggressively pursue US ratification of the Comprehensive Test Ban Treaty”.

With the Republican-majority Senate in no mood to indulge Obama, however, the president's White House team has now cast its eye on the UN to procure a farewell present for him and get closer to his aim of non-proliferation. In his first public reaction to the move by the US, the executive secretary of Vienna-based CTBTO, Lassina Zerbo, welcomed the American decision by saying “any step” that reinforces the global norm against nuclear test explosions “is a step in the right direction”.

... A geo-physicist from Burkina Faso, Zerbo noted

**With the Republican-majority Senate in no mood to indulge Obama, however, the president's White House team has now cast its eye on the UN to procure a farewell present for him and get closer to his aim of non-proliferation.**

that the resolution will call upon all states to maintain the CTBTO's global monitoring network, the "International Monitoring System", which has shown that it can "deter and detect nuclear tests with great reliability". "The network is 90% complete, comprising 300 stations, some in the most remote and inaccessible areas of the Earth and sea. The system swiftly and precisely detected all four of the Democratic People's Republic of Korea's declared nuclear tests. The maintenance and completion of the monitoring system is of utmost importance in order not to lose the huge technical and financial investment made throughout the last 20 years," he told The Wire.

However, he added that the resolution should "not divert our attention from the real unfinished business:

the fact that we have a treaty which is operational, yet still not in force, after 20 years". "A Security Council resolution is a positive step, but what really counts is the ratification of the remaining eight countries to bring the CTBT into force".

In Washington, the UNSC resolution plan got a predictably furious reception in Republican circles, with the chair for the Senate foreign relations committee, Bob Corker terming it "an affront to Congress... an affront to the American people". "Should we ever decide we may wish to test, we could be sued in international courts over violating a United Nations Security Council resolution that Congress played no role in," he said.

In an angry editorial, the *Wall Street Journal* denounced the proposal for attempting to "usurp the Senate's constitutional treaty powers with an end-run to the UN". "Mr. Obama has already entered brave new worlds of executive overreach by ignoring Congress on immigration and sending the Iran deal to the UN before submitting it (as a non-treaty) to the Senate. This would be a new low, undermining America's nuclear deterrent while showing contempt for constitutional bounds," the editorial said.

Zerbo, however, asserted that the UNSC resolution will only be exhortatory in nature, and would not supplant the US legislative system. "In order for the US to ratify the CTBT, the US Senate would have to provide its advice and consent to ratification. In my view, this resolution cannot supersede or circumvent that process," he said.

**Proposal Draws Scepticism:** The polarised political atmosphere in the US, however, may not have much time for the claims of Congress's supremacy over the ratification procedure to be debated. "A Security Council resolution might help Obama's image but would enhance polarisation with the Senate," said Rakesh Sood, the special envoy on disarmament and non-proliferation of former Prime Minister Manmohan

**The polarised political atmosphere in the US, however, may not have much time for the claims of Congress's supremacy over the ratification procedure to be debated. "A Security Council resolution might help Obama's image but would enhance polarisation with the Senate."**

Singh. "Since it doesn't change the entry into force provisions, the resolution will still require Senate ratification which will be now more unlikely. This will make it impossible for the CTBT to ever see the light of the day," he added.

Drawing parallels with the Obama administration's Iran deal – which bypassed Congress – is "misplaced", said Sheel Kant Sharma, a former Indian ambassador to the UN in Geneva and a former SAARC secretary general. The UNSC became the arbiter as the International Atomic Energy Agency had transmitted to it a resolution noting the non-implementation of Iran's treaty obligations under the NPT and its safeguards agreement, he said.

"In case of [the] CTBT, it's [a] well worked out treaty with 164 countries as treaty parties. Though not in force, it has been there for 20 years. You cannot completely supplant the treaty process with a Security Council resolution. It will undermine the CTBT no end," Sharma asserted. He pointed out that among the countries who still have to ratify the CTBT, North Korea and Iran have "individually rejected UNSC *dadagiri* (bullying). So to expect the UNSC resolution to lead to the

signing of CTBT is not realistic”.

Manpreet Sethi, senior fellow at Centre for Air Power Studies, said that the “last ditch effort by an embattled president who couldn’t live up to most of his nuclear promises in Prague” is not likely to meet much success. Not only will he face heavy opposition from Congress, “more importantly, [the] time is not ripe for engendering a consensus within the UNSC on this issue”, she said.

**The “last ditch effort by an embattled president who couldn’t live up to most of his nuclear promises in Prague” is not likely to meet much success. Not only will he face heavy opposition from Congress, “more importantly, [the] time is not ripe for engendering a consensus within the UNSC on this issue.**

Among the P-5, only the US and China have not ratified the treaty. “To force Chinese ratification by going to the UNSC is very political.... You might put China on the mat, but that’s a small gain for the treaty.... After all, if China doesn’t veto, then they have a responsibility as a permanent member to ratify,” said Sharma.

... With Washington’s relationship with Russia having “deteriorated considerably”, keeping an eye on the East should be “the number one priority”, he claimed. “Some will say that doing both [pushing for the UN resolution and focusing on Russia] is possible and that these are not mutually exclusive goals. That may be true, but more often than not, focusing on one order of business means relegating another to the bench,” said Santoro. ...

**India was prepared to bring discussions on the CTBT “to a successful conclusion, so that [the coming] into force of the CTBT is not delayed beyond September 1999”. That deadline wasn’t met, but Vajpayee reiterated on various occasions that “India will not stand in the way of entry into force of the CTBT.**

**The Indian Stance:** A UNSC resolution, with no legally binding obligation, certainly cannot force India to adhere to the CTBT, officials say. In the afterglow of Prague in 2009, Obama chaired a special session of the UNSC at the level of heads of governments that adopted Resolution 1887, which called on non-signatories of the NPT to accede to the treaty. Seven years later, India, Pakistan and Israel have yet to fall in line. But, if the resolution on the CTBT does come to pass, India may have to take a public stance – balancing its traditional position as it conducts a campaign to join the NSG after a failed attempt in June.

The Stimson Centre’s Michael Krepon has argued in favour of the UNSC resolution on the basis that it will allow for reaffirmation of national moratoria. “This resolution provides an opportunity for the permanent five members of the Security Council to reaffirm a global ban on testing. It also provides an opportunity for India, Pakistan, and Israel to reaffirm their national moratoria on testing,” he wrote.

Kimball, who in the past has not favoured India getting a key to the NSG, felt that it will be “useful” if India’s leadership “would not only reaffirm their commitment not to resume nuclear testing but to take part in the international monitoring system and to commit to considering ratification of the CTBT at a future time”.

“[The] Indian government [has] not provided a coherent explanation for why it considers the CTBT to be discriminatory or why it is opposed to a global, legally binding prohibition on nuclear test explosions. If India expressed active opposition to the CTBT at this time, it would not help its ambition to become a member of the NSG,” he added. Echoing such views, Santoro also noted, “I believe that it would be

in Indian interests to support the resolution if it wants to be a responsible international citizen”. Zerbo also weighed in that India has been an “ardent supporter of non-testing”. “India took part in the negotiations of the CTBT, and has reaffirmed that it would not stand in the way of the entry into force of the treaty,” he said.

After the 1998 Pokhran-II nuclear tests, at a UN General Assembly session, former Prime Minister Atal Bihari Vajpayee indicated that India was prepared to bring discussions on the CTBT “to a successful conclusion, so that [the coming] into force of the CTBT is not delayed beyond

September 1999". That deadline wasn't met, but Vajpayee reiterated on various occasions that "India will not stand in the way of entry into force of the CTBT".

Even one-and-half years after the new government took over in 2004, Manmohan Singh's administration was still stating Vajpayee's position on the CTBT. But, references to Vajpayee's line have reduced since then. Only Japan continues to raise the issue of adhering to the CTBT at all its bilateral meetings with India; to which the standard Indian response is to reiterate its commitment to a "unilateral and voluntary moratorium on nuclear explosive testing". ...

During the 1996 talks on the CTBT in Vienna, Sood was the director in the foreign ministry's disarmament and internal security division, coordinating with Ghose, who was representing India in Geneva at the time, to stop the rail-roading of India's objections. "We should use this opportunity to once again point out the flaw in the CTBT pertaining to its entry into force provisions. We should also point out that Obama has authorised [the] modernisation of [the] US [nuclear] arsenal at a cost of \$1 trillion over three decades," Sood said in reply to a query on how India should frame a position on the UNSC resolution.

With India highly unlikely to give any firm commitment to sign the CTBT and China keeping mum on ratification, Sharma said that during the NSG process India should highlight the fact that it has tested only twice in the last 42 years. "For most of the time, we have not tested. In the same period, others have conducted thousands of tests".

Source: Article by Devirupa Mitra, <http://thewire.in>, 09 August 2016.

## NUCLEAR TERRORISM

### PAKISTAN

#### Hizbul Chief Warns of Nuclear War if Kashmir Issue Not Resolved Now

In a continuation of provocative statements over Kashmir originating from Pakistan, Hizbul Mujahideen chief Syed Salahuddin threatened of a nuclear war between the two arch rivals if the vexed issue was not resolved. Salahuddin, on the National Investigation Agency's Most Wanted List, held a press conference in Karachi and said, "Pakistan is duty bound, morally bound, politically bound and constitutionally bound to provide concrete, substantial support to the ongoing freedom struggle on the territory of Kashmir. And, if Pakistan provides this support, there is a great chance of a nuclear war between the two powers," said Salahuddin.

"If a peaceful solution is not reached then Pakistan should consider cutting off diplomatic ties with India over the killing of Wani," he said. Salahuddin's rash comment about a nuclear Armageddon between the two neighbours armed with nuclear bombs has been consistent with Pakistani authorities threatening to use nukes in case of a war with India. This has caused a lot of concern among global powers about the safety of nuclear weapons in Pakistan.

Meanwhile, Union Minister Venkaiah Naidu chastised Pakistan for allowing perpetrators of terror attacks in India to roam free. "They keep talking bad (like this) just for publicity. Pakistan must seriously think if encouraging such people is right," the Union Minister said. Relations between India and Pakistan have been steadily

**With India highly unlikely to give any firm commitment to sign the CTBT and China keeping mum on ratification, Sharma said that during the NSG process India should highlight the fact that it has tested only twice in the last 42 years. "For most of the time, we have not tested. In the same period, others have conducted thousands of tests.**

**Salahuddin's rash comment about a nuclear Armageddon between the two neighbours armed with nuclear bombs has been consistent with Pakistani authorities threatening to use nukes in case of a war with India.**



spiraling down with statements coming from Islamabad on Kashmir almost on a daily basis. The recent controversy over the alleged blacking out of the speech of Home Minister Rajnath Singh during the SAARC meet has done no good either.

Source: <http://www.newindianexpress.com>, 09 August 2016.

## **NUCLEAR SAFETY**

### **CHINA**

#### **Move to Test Effectiveness of Security System and Emergency Response Mechanism**

China has held its first comprehensive national-level emergency drill to deal with potential nuclear accidents, seeking to allay safety and security concerns over its aggressive nuclear-power expansion programme that has run into obstacles domestically and overseas. The drill, code-named Storm-2016, was held to test the effectiveness of the nuclear security system and the emergency response mechanism, the State Administration of Science, Technology and Industry for National Defence said on 7 August. "The drill was held on the principle of real-life battle. It was not scripted and did not have a planned result.... The drill met expectations," the administration said on its website.

China last held national nuclear emergency response drills in 2009 and 2015. Drills are also held by provincial governments once every two years and by nuclear firms such as the CNNC and the China General Nuclear Power Group once yearly. But the drill is described as the first comprehensive exercise, though no details were given on the location of the drill, which could have been withheld to avoid stirring concerns among locals, said Tsinghua University's nuclear safety expert Gui Liming. "If the authorities revealed the province in which the drill was held, local residents might interpret it as a sign of poor safety standards there and become more concerned," he told *The Straits Times*.

There were also no details on the scale of the drill, but Dr Gui said it is likely to have involved a national nuclear emergency response task force set up in January this year to handle serious accidents and to take part in overseas operations. He added that more details on the drill should be revealed soon to boost confidence in China's nuclear safety system, amid a rapid expansion programme as part of efforts to tackle air pollution and greenhouse gas emissions, and cut dependence on imported oil and gas. China, which began building its first nuclear power station in 1985, now has 34 reactors in operation and 20 under construction, mostly located in coastal provinces like Guangdong.

... Thousands of residents in Lianyungang reportedly gathered in a local square, chanting "no nuclear fuel-recycling project in Lianyungang", according to video footage sent to the *Global Times* tabloid by one of the protesters. The project, which is backed jointly by China and France, is expected to handle 800 tonnes of nuclear waste produced yearly by China's nuclear power plants.

Construction is set to begin in 2020.

An employee of the Lianyungang government told the *Global Times* that it has not been decided whether the project would be launched in the city, adding that the local authority has no say, given its status as a national-level project. Critics say concerns over China's nuclear power plants are valid, given the country's poor track record of industrial safety, with major accidents taking place in recent years, like the Tianjin chemical warehouse explosion in August 2015. Not helping China's case were media reports on 5<sup>th</sup> August that four officials at the Yangjiang nuclear power plant in Guangdong had breached safety guidelines that caused a reactor to stop functioning for a while in 2015 and then tried to cover up their mistakes.

A Chinese nuclear deal to build a plant at Hinkley Point in the south-western part of Britain is also at risk of being scuppered under new British Prime

**A Chinese nuclear deal to build a plant at Hinkley Point in the south-western part of Britain is also at risk of being scuppered under new British Prime Minister Theresa May over national security concerns. But Dr Gui said concerns over China's nuclear safety might be overblown as the country has tightened safety regulations and upgraded technology in the aftermath of the Fukushima accident.**

Minister Theresa May over national security concerns. But Dr Gui said concerns over China's nuclear safety might be overblown as the country has tightened safety regulations and upgraded technology in the aftermath of the Fukushima accident. "The authorities can assuage concerns by holding more emergency response exercises and being more proactive and transparent in its enforcement against safety lapses at nuclear power plants," he said.

Source: <http://www.straitstimes.com>, 10 August 2016.

## **FRANCE**

### **Nuclear Safety Fears Grow as France Snubs UK Watchdog**

Britain's nuclear watchdog was made to wait more than a fortnight for key files from energy giant EDF confirming that components recently revealed to be suspect had not been used in one of Britain's largest nuclear power stations. Emails released under the Freedom of Information Act show that in early May, France's EDF Group initially rebuffed requests from the ONR to hand over files about a foundry in France that made specialist parts for EDF's reactors. The request followed a shock announcement by the foundry's owner, Areva, on 2 May that quality control reports could have been falsified. The email trail shows the ONR was still making requests for a components list on 18 May, 16 days after the safety fears were first aired.

Dr David Lowry of the Institute for Resource and Security Studies, who obtained the emails, said they raised questions about the regulator's powers. "ONR has run into so many difficulties in obtaining safety documentation from the French nuclear industry. How will it obtain key documents from the notoriously secretive Chinese nuclear industry, if they get permission to build their own reactors at Bradwell, on the Blackwater Estuary in Essex?" The UK regulator feared that the suspect Areva components might have been used in the construction of Suffolk's Sizewell B power station and that others were destined for the proposed Hinkley Point C in Somerset.

... Emails suggest that the watchdog struggled to obtain information from the French company's UK subsidiary, EDF Energy, to enable it to make an urgent safety assessment. An email from the ONR dated 13 May states: "We have been in contact with EDF Group and while they do have access to the Areva component files, they are not able to release them to EDF Energy." The watchdog said EDF had informally advised it that none of the components in Sizewell B posed a safety risk. But, without access to the files, it had to rely on the French firm's assurances.

... EDF Energy insists it was ultimately able to access all the relevant files from its parent company, EDF Group, and shared these with the regulator. Eventually, in June, EDF stated that it was able to independently confirm that Sizewell B was not affected by issues under investigation at Areva's Creusot Forge in France. France's energy minister, Ségolène Royal, said tests confirmed there were no mechanical problems associated with the suspect components. The regulator's ability to oversee foreign energy companies operating in the UK has been thrown into sharp relief by the planned £18bn construction of Hinkley Point C, which is awaiting approval from the government.

A spokeswoman said ONR "had no trouble" accessing files it needed in the necessary timescales. As published documents show, we engaged closely with the licensee, but also with Areva and the French regulator, ASN." She said an independent review had confirmed "no deficiencies were identified".

Source: <https://www.theguardian.com>, 06 August 2016.

**South Australia is exploring the idea of setting up a repository for nuclear waste in the state and plans to reach out to its partner countries including India if the recommendation mooted by its Royal Commission is accepted.**

## **NUCLEAR WASTE MANAGEMENT**

### **AUSTRALIA**

#### **South Australia Mulls Repository for Nuclear Waste**

South Australia is exploring the idea of setting up a repository for nuclear waste in the state and plans to reach out to its partner countries including India if the recommendation mooted by

its Royal Commission is accepted. "South Australia is considering...recommendations of Royal Commission. It points out that there is a multi-billion dollar opportunity for Australia to become a repository for nuclear waste," Martin Hamilton Smith, Minister for Trade and Investment, South Australia said 8 August.

If the recommendation is accepted, "It simply opens another business opportunity between Australia and India and.... To agree to store waste in a site in South Australia," he noted. Asked why Australian companies have not come forth to supply uranium to India even after the deal came into force in 2015, the Minister said: "It is now a matter of an Indian company and a South Australian company to do a deal together to buy and sell Uranium. My understanding is all the obstacles to that process have been cleared". ...

Source: <http://www.business-standard.com>, 08 August 2016.

### CHINA

#### China Suspends Work on Nuclear Waste Project Following Protests

The city of Lianyungang in China's eastern Jiangsu province has suspended work on a nuclear waste processing plant following days of protests, it said on 10 August. The Lianyungang Municipal People's Government has decided to suspend site selection and preliminary work on the nuclear

recycling project," it said in a notice posted on its website. The project, to be run by the CNNC, was scheduled to start construction in 2020 and be completed by 2030, but the announcement sparked protests among local residents concerned about health risks.

Source: <http://af.reuters.com>, 10 August 2016.

### USA

#### N.M. Nuclear Waste Repository will Likely Reopen

The US DoE says it is 80% confident that the federal government's only underground nuclear waste repository will partly reopen in December. The Santa Fe New Mexican reports that prediction comes after federal officials once promised the Waste Isolation Pilot Plant, located east of Carlsbad, would be cleaned up and reopened. The New Mexico plant has been closed since February 2014, when an inappropriately packed container of waste from Los Alamos National Laboratory ruptured and contaminated part of the facility.

The closure derailed cleanup at federal sites around the nation and recovery is costing the Energy Department hundreds of millions of dollars. A Government Accountability Office audit released said the agency knew it had only a 1 percent chance of meeting that March 2016 deadline.

Source: <http://www.kvia.com>, 07 August 2016.



Centre for Air Power Studies

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

Centre for Air Power Studies

P-284

Arjan Path, Subroto Park,

New Delhi - 110010

Tel.: +91 - 11 - 25699131/32

Fax: +91 - 11 - 25682533

Email: [capsnetdroff@gmail.com](mailto:capsnetdroff@gmail.com)

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

Edited by: Director General, CAPS

Editorial Team: Dr. Sitakanta Mishra, Hina Pandey, Arjun Subramanian P, Chandra Rekha, Manisha Chaurasiya,

Composed by: CAPS

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