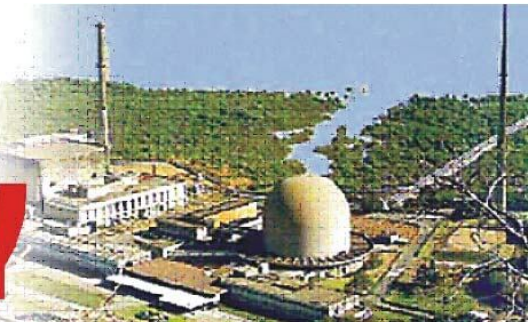
NUCLEAR SECURITY



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

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OPINION – Yukiya Amano

Stopping a Dirty Bomb

Nuclear terrorism is, in the words of US President Barack Obama, "the gravest danger we face." But while few would dispute this characterization, the world has unfinished business in minimizing the threat. Ten years after world leaders agreed to amend the landmark 1987 CPPNM to make it harder for terrorists to obtain nuclear material, the new measures have yet to enter into force. The resulting vulnerability needs to be addressed urgently.

In July 2005, signatories to the CPPNM agreed to amend the Convention to address the risk of terrorism more effectively. The new measures that were introduced would make it more difficult for terrorists to cause a widespread release of radioactive material by attacking a nuclear power plant or detonating a radioactive dispersal device – commonly known as a dirty bomb. But before the amendment can enter into force, two-thirds of the 152 signatories to the original convention must ratify it. While significant progress has been made – in July, the US, Italy, and Turkey did so – at least 14 more countries are needed.

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The fact that there has never been a major terrorist attack involving nuclear or other radioactive material should not blind us to the severity of the threat. There is evidence that terrorist groups have tried to acquire the material needed to construct a crude nuclear explosive device, or a dirty bomb. In 2011, for example, Moldovan police seized highly enriched uranium from a group of smugglers who were trying to sell it. The smugglers, exhibiting a worrying level of technical knowledge, had tried to evade detection by building a shielded container. In this case, the story ended happily. Thanks to efforts by Moldova, with the assistance of the IAEA, to boost its nuclear security capabilities, the material was identified and confiscated, and the smugglers were arrested. There is no way to know whether the smuggling effort uncovered in Moldova is an

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outlier or the tip of a very large iceberg. But one thing is certain: the amount of nuclear material in the world is increasing.

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Since 1995, the IAEA's member states have reported nearly 2,800 incidents involving radioactive material escaping regulatory control. Although only a handful of these incidents involved material that could be used to make a nuclear explosive device, a relatively small amount of radioactive material could be combined with conventional explosives to create a dirty bomb. Such a weapon could be capable of killing many people, contaminating large urban areas, and sparking mass panic.

Effective international cooperation is critically important. The consequences of a major security failure could be a catastrophe that transcends borders. All countries must take the threat of nuclear terrorism seriously. The single most effective way to do so would be to ensure that the amendment to the CPPNM enters into force as soon as possible.

Much has been achieved in the secure management of nuclear material since the attacks on the United States in September 2001 prompted a renewed focus on the risks of terrorism. Many countries have instituted effective measures to prevent the theft, sabotage, or illegal transfer of nuclear or other radioactive material, and security at many nuclear facilities has been improved. But much more needs to be done. The original Convention focused only on the international transport of nuclear material, and did not cover the protection of nuclear facilities. The amendment adopted ten years ago would oblige countries to protect nuclear facilities and any nuclear material used, stored, or transported domestically. It would expand cooperation on locating and recovering stolen or smuggled nuclear material and coordinate the response to any attack on a nuclear facility. It would also make nuclear trafficking a criminal offense and require signatories to cooperate on improving national systems of physical protection and minimizing the consequences of sabotage.

Protecting nuclear material is not just an issue for countries that use nuclear power. Terrorists and criminals will try to exploit any vulnerability in the global security system. Any country, in any part of the world, could find itself used as a transit point – just as any country could become the target of an attack. Effective international cooperation is critically important. The consequences of a major security failure could be a catastrophe that transcends borders. All countries must take the threat of nuclear terrorism seriously. The single most effective way to do so would be to ensure that the amendment to the CPPNM enters into force as soon as possible.

Source: https://www.project-syndicate.org, 04 September 2015.

OPINION – Rakesh Sood

From City of Remembrance to City of Hope

When the sun dawned on August 6, 1945, Hiroshima was just a large Japanese city with a population of 3,50,000 that had escaped the destruction of massive aerial bombing. That day ended early, at 0815 hours when Colonel Paul Tibbets, flying a US B-29 Super Fortress bomber named 'Enola Gay' (after his mother), dropped the Little Boy over the city, making Hiroshima an unforgettable chapter of human history.

Little Boy was a three metre-long gun-type nuclear

device using highly enriched uranium. Its 16 KT explosion killed over 70,000 persons instantly, with the toll doubling before the end of the year, and flattened all the buildings in a 3-km radius from the hypocentre. The fireball raised temperatures to over 3,000 degrees Celsius and roof tiles bubbled; a stone step carries the shadow of a person as he/she just evaporated. A sixth of the energy release was in the form of radiation to which 3,00,000 people were exposed. The skies darkened with the mushroom cloud and as temperatures came down, there fell a black rain of radioactive soot and dust. Sixteen hours later, US President Harry S. Truman announced to the world that Hiroshima had been destroyed by a new kind of weapon, the atomic bomb.

Three days later, the US dropped another device, Fat Man, a plutonium based implosion bomb of 20 KT explosive power on Nagasaki, a major shipbuilding centre. Given the topography of the town, the number of casualties was slightly lower. The original target was the nearby city of Kokura but because it lay covered under a pall of smoke arising from the previous days' conventional bombing strikes, visual sighting was not possible and Major Charles Sweeney, commanding the B-29 Bockscar turned southwards to Nagasaki, the alternative target. On August 15, the war ended with Japan's unconditional surrender.

***Reconstruction from the Ashes*:** Today, Hiroshima ranks as one of Japan's industrialised cities, with a population of over a million. Its nuclear past renders it unique though. The Governor of the Prefecture, Hidehiko Yuzaki, launched a Hiroshima for Global Peace Plan in 2011, as a symbolic point of origin for pursuit of peace, abolition of nuclear weapons, post-conflict reconstruction and hope in the spirit of man. Mayor Kazumi Matsui chairs an initiative called Mayors for Peace which brings together over 6,700 cities worldwide that are committed to seeking global nuclear disarmament by 2020. Around the hypocentre, a Peace Memorial Park has been created overlooked by the skeletal remains of the dome of the Exhibition Hall.

In addition to a museum and an eternal flame, it contains a cenotaph where the names of those affected by the explosion continue to be inscribed after their death. Currently, it bears nearly 3,00,000 names. The hibakushas (atomic bomb survivors) today number about 1,80,000 and at an average age of 80, remain a potent reminder of the agony and suffering that this city has witnessed. Every year, a peace memorial ceremony is held on August 6, marked by remembrance but also coloured by the politics of remorse. People gather to pray for their relatives; make paper cranes, in memory of Sadako Sasaki who succumbed to leukaemia in 1955 before her 13th birthday, believing that making a thousand paper cranes would make her wishes come true; and at dusk, float thousands of paper lanterns on the river with messages to guide the spirits of the departed.

This year, Japanese Prime Minister Shinzo Abe's speech in Hiroshima skipped the three traditional non-nuclear pledges (not possessing, producing or permitting nuclear weapons on Japanese territory) which were first spelt out in 1967 by Prime Minister Eisaku Sato and have been reiterated since, including by Mr. Abe in 2013 and 2014.

This year, Japanese Prime Minister Shinzo Abe's speech in Hiroshima skipped the three traditional non-nuclear pledges (not possessing, producing or permitting nuclear weapons on Japanese territory) which were first spelt out in 1967 by Prime Minister Eisaku Sato and have been reiterated since, including by Mr. Abe in 2013 and 2014. The omission immediately stoked speculation and wanting to avoid further controversy, Mr. Abe reiterated the pledges in his Nagasaki speech on August 9. There is a rising tide of nationalism in East Asia which reveals that historical memories of the regional conflicts are deep-seated and overshadow the remorse that Hiroshima generates.

***Looking Beyond the Myths*:** The horrors of Hiroshima and Nagasaki have helped generate a norm against nuclear weapons and this gets strengthened with every year. Yet, it has not proved

possible to take decisive steps towards nuclear abolition. Part of the reason is the myth-making that has been associated with this issue since the very beginning. For a long time, the prevalent view was that dropping the atomic bombs in 1945 helped end the war because the only alternative was an invasion of Japan which would have claimed the lives of half a million US soldiers, and a greater number of Japanese lives. New scholarship now makes it clear that it was the USSR's entry into war against Japan on August 8 which convinced the Japanese leadership that it had no choice now but to surrender.

For a long time, the prevalent view was that dropping the atomic bombs in 1945 helped end the war because the only alternative was an invasion of Japan which would have claimed the lives of half a million US soldiers, and a greater number of Japanese lives. New scholarship now makes it clear that it was the USSR's entry into war against Japan on August 8 which convinced the Japanese leadership that it had no choice now but to surrender.

Second, contrary to popular belief, no specific warnings were given to the Japanese people about the bomb and the idea of a demonstration explosion was rejected on the ground that it might not work and as there were only two devices available. Politically, the use of the bomb did not yield any advantage to the US in its post-World War-II negotiations with the USSR but hardened Stalin's resolve to accelerate its nuclear programme, setting the stage for a long-drawn Cold War accompanied by an obscene accumulation of more than 70,000 nuclear weapons by the two superpowers.

The NPT framework cannot accommodate India's position or tackle China's flagrant assistance to Pakistan; its review conferences have repeatedly failed in grappling with Israel's programme; the DPRK walked out of the treaty; and most recently, Iran ensured that it will retain a non-weaponised capability in terms of its enrichment programme. Clearly, the NPT has reached the limits of its success and even exhausted its normative potential.

During the Cold War, another myth got generated that the best route to nuclear disarmament lay through nuclear non-proliferation. The Treaty on the NPT took shape during the 1960s and today enjoys widespread adherence. It may have helped prevent proliferation but even its staunch supporters are hard-pressed to show that it has made any impact on nuclear arms reductions. The fact that the five countries acknowledged as nuclear-weapon-states in NPT are the same as the five Permanent Members of the UNSC may have been a coincidence in the 1960s, but today, is a liability that diminishes the NPT. The NPT framework cannot accommodate India's position or tackle China's flagrant assistance to Pakistan; its review conferences have repeatedly failed in grappling with Israel's programme; the DPRK walked out of the treaty; and most recently, Iran ensured that it will retain a non-weaponised capability in terms of its enrichment programme. Clearly, the NPT has reached the limits of its success and even exhausted its normative potential.

Today's nuclear world is very different from the bipolar world of the Cold War dominated by the superpower nuclear rivalry. The centre of gravity has shifted from the Euro-Atlantic to the Asia-Pacific region and this is a more crowded geopolitical space without any overarching binary equation. Different players have widely disparate nuclear arsenals and different doctrinal approaches. Even as the number of variables and the number of equations have grown, there is an absence of a security architecture in the Asia-Pacific region. As a nuclear conscience keeper, Hiroshima can provide the world a dialogue platform to explore new thinking for lowering the risks associated with nuclear weapons and doctrines, reducing numbers of weapons to minimal levels and eventually creating conditions for abolition of nuclear weapons. Such a platform will certainly strengthen

the norm against the use of nuclear weapons. However, there must be a willingness to go beyond the myths that have coloured the discussions on nuclear proliferation and disarmament. From a city of remembrance, Hiroshima can then become a city of hope where the first meaningful steps for a nuclear weapon free world were negotiated.

On Aug 27, in Astana, Kazakhstan, officials opened an international nuclear fuel bank, led by the IAEA and hosted by Kazakhstan, to secure, house and supply LEU fuel. The existence of an LEU fuel bank is a significant step forward in the evolution of non-proliferation policy, and it will make the world a safer place.

Source: http://www.thehindu.com/, 07 September 2015.

OPINION – Richard G. Lugar

Why a Nuclear Fuel Bank Matters

The multinational agreement to prevent Iran from obtaining nuclear weapons is one of the most consequential non-proliferation moments in recent history. One byproduct of the current public debate on the Iran nuclear deal is an improved understanding of how states acquire nuclear weapons and what it takes to stop or dissuade them from taking this fateful step. Accounts of actions taken by Iran and the negotiations of the past several years have served as primers for many observers who had never contemplated what a centrifuge was or fully considered the relationship between nuclear power and nuclear weapons.

The fuel bank's guarantee of available nuclear fuel in international markets will complicate claims of any regime that hopes to edge up to a nuclear weapon by enriching and reprocessing uranium ostensibly for civilian use.

The Iran case underscores the continuing need for innovative, multilateral cooperation on ways to reduce proliferation risks and temptations. One such effort that may help prevent future proliferation cases is now coming to fruition. On Aug 27, in Astana, Kazakhstan, officials opened an international nuclear fuel bank, led by the IAEA and hosted by Kazakhstan, to secure, house and supply LEU fuel. The existence of an LEU fuel bank is a significant step forward in the evolution of non-proliferation policy, and it will make the world a safer place.

The goals of the IAEA are to promote the peaceful use of nuclear energy by member states, to verify that nuclear energy is not used for military purposes and to promote high standards for nuclear safety. The nuclear fuel bank directly supports these goals and supports the broader framework of global non-proliferation policy, including dismantling existing weapons and preventing the development of new weapons, technology and materials. The bank will be owned and controlled by the IAEA, not by any one nation. It will guarantee to be a supplier of last resort to any country that needs fuel for a peaceful nuclear power generating reactor but can't obtain it on the open market. The bank will have strict controls to ensure the uranium is not diverted to a weapons program. With this supply assurance, countries that want to develop a nuclear electricity program will have no reason — or excuse — to build their own uranium enrichment facilities, which could be used to manufacture weapons-grade material.

A goal of the LEU fuel bank agreement is to prevent other countries from following Iran's playbook to becoming a nuclear power. The IAEA fuel bank matters because it will expose and undermine the claim of potential proliferators, like Iran, who assert that domestic nuclear enrichment is necessary for civilian energy production. The fuel bank's guarantee of available nuclear fuel in international markets will complicate claims of any regime that hopes to edge up to a nuclear weapon by enriching and reprocessing uranium ostensibly for civilian use.

In such circumstances, the existence of the fuel bank is likely to undergird more rapid and unified engagement by the international community in

challenging the regime's claims. The countries and organizations that have helped create the IAEA fuel bank, including the European Union, Kuwait, Norway, the United Arab Emirates, the United States and the Nuclear Threat Initiative share a common vision for nuclear security. And so does the host country of Kazakhstan, which, as a Soviet atomic testing ground, fully understands the horrors of nuclear weapons. Kazakhstan and its leader, President Nursultan Nazarbayev, worked under the Nunn-Lugar program to relinquish voluntarily 1,410 nuclear weapons after the breakup of the Soviet Union. More recently, in 2006, it established the Central Asia Nuclear-Weapon-Free Zone to further its commitment. The legitimacy of the IAEA-run fuel bank is enhanced by Kazakhstan's non-proliferation history.

For more than half a century, the nuclear non-proliferation regime has been successful in limiting the expansion of nuclear weapons, technologies and materials. Currently, fewer than a dozen countries possess nuclear weapons, and since 1992, the number of countries with weapons-usable nuclear materials has been cut in half — from 50 to 25. Yet the basic premise of the nuclear fuel bank — to secure nuclear fuels, to prevent nuclear weapons and proliferation and to encourage safety and security — remains as relevant and essential as ever. With the world facing crisis situations, such as Iran, and threat of terrorism a constant concern, it is critical that the global community has every effective tool at its disposal and fully supports the IAEA's LEU fuel bank.

Source: http://thehill.com/ , 01 September 2015.

OPINION – Lady Barbara Judge

Nuclear Power can Now Sweep the Developing World – Safely

With everyone fixated on the negotiations over Iran's nuclear programme, it is regrettable but perhaps understandable that the world has missed a crucial moment in the history of nuclear non-proliferation. The IAEA, the government of Kazakhstan and a host of other international actors have agreed a deal to create the first truly international nuclear fuel bank, a move with huge potential for economic development and for nuclear non-proliferation. After approving the idea in late 2010, the IAEA and Kazakhstan have agreed to set up a LEU bank. It will be owned and operated by the IAEA, with Kazakhstan footing the daily operational costs.

Donors whose contributions have been key to getting this idea off the ground have included Warren Buffett, who gave $50m through the NTI, and the US, EU, Norway, Kuwait, UAE and the government of Kazakhstan. The fuel bank is an attempt to overcome one of the central dilemmas of utilising nuclear technology: the historical risk states that those countries who enrich uranium for developmental purposes will be tempted to use this technology to create deadly nuclear weapons. Under the arrangements for the planned fuel bank, countries will be able to draw on this reserve of LEU to fuel their nuclear power plants without having to develop enrichment capabilities of their own. It's an idea that has widespread support and currency – even Iran's then president, Mahmoud Ahmadinejad, expressed his country's backing for a fuel bank when visiting Kazakhstan in 2009. The LEU bank also embodies the 1970 Nuclear Non-Proliferation Treaty's vision of promoting global cooperation in the peaceful uses of nuclear energy.

The potential implications for global development are really quite significant. As well as ensuring a stable and predictable contingency plan for countries whose supply of nuclear fuel is disrupted, the LEU bank will provide access to fuel for countries that have expressed a desire to diversify their energy producing capabilities. As they embrace technology across all sectors, countries are also looking to move away from coal and other polluting methods of power generation enjoyed by advanced economies. Further, the fuel bank has the potential to move the bar on the global debate about nuclear energy. Nuclear technology has moved forward and will continue to do so but, crucially, nuclear is here to stay.

It is time for the public debate around nuclear

energy to move beyond the scare stories of the last century. As the economies of the emerging world continue to grow, more and more countries will naturally want to join the nuclear club. This is partly due to prestige and ambition, but also because of the environmental awakening that we in the West – having secured our own industrial and economic development – are trying to impose on developing countries, some of which boast growth rates that are the envy of the West.

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Why is Kazakhstan, a country often overlooked in the Western political imagination, home to such a significant initiative? Because its credentials on nuclear non-proliferation are second to none. Since the break-up of the Soviet Union, Kazakhstan has been a leader on the issue.... Under President Nursultan Nazarbayev, the country took the – at the time brave – decision to decommission and give up its nuclear arsenal under the Nunn-Lugar Programme. Whether or not the fuel bank lives up to its full potential depends greatly on how far we in the West are willing to take advantage of Kazakhstan's initiative. Going beyond the usual rhetoric, the IAEA and the West – working closely with Russia – must ensure the success of the fuel bank, by actively encouraging countries to steer away from the path Iran chose to fulfil its nuclear ambitions. Doing so will promote the use of nuclear fuel as an efficient and environmentally friendly means to economic development. It will also help make the world a safer place.

Source: http://www.cityam.com, 10 September 2015.

OPINION – Jerry Paul

Nuclear Energy is Clean, Safe Energy

A recent guest column appearing in the Herald by spokespersons from Sierra Club, Greenpeace and Friends of the Earth asserts that, "Nuclear power is a losing proposition." A fact-based test of this claim yields an opposite result. The culture of anti-nuclear activism has dwindled significantly in recent times precisely because of the recognition that nuclear energy provides unmatched benefits to the environment. There was nothing new in the arguments of the recent column. They were recycled from a generation ago and largely debunked through five decades of America's successful operation of more than 100 carbon-free nuclear power plants. The authors' claims also contradict a bipartisan chorus of contemporary opinion leaders who have real expertise. For example, Christie Todd-Whitman, former secretary of the US Environmental Protection Agency (EPA), recently pointed out that, "Nuclear energy provides 98 percent of Florida's carbon-free electricity, and Florida's reactors have effectively offset 15 million tons of carbon emissions each year, which is the equivalent of removing 3 million cars from the road annually."

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As America's former top environmental regulator, she explained that additional nuclear plants will help Florida comply with the upcoming rules under President Obama's EPA's Clean Power Plan....Carol Browner, a former secretary of the Florida's Department of Environmental Regulation, has said, "Preserving our existing nuclear plants will be a key part of our efforts to reduce carbon emissions and build

a cleaner-energy future and safer environment for our children." She has credibility on this topic. She was also the longest serving administrator of the US Environmental Protection Agency from 1993 to 2001 and also served as director of the White House Office of Energy and Climate Change Policy for President Obama.

Obama's current EPA leadership also disagrees with the authors of the column. A recent Bloomberg News article, New nuclear power seen as winner in Obama's clean-power plan, quotes US EPA Administrator Gina McCarthy saying: "Nuclear facilities will be credited because it's new, zero-carbon generation that will be credited as part of a compliance strategy ... that's entirely consistent and appropriate."

Although activist organizations can still grab local headlines and motivate donors by opposing nuclear energy, they often do it with shock-talk and false claims. For example, a group in Knoxville, Tennessee, recently started a petition drive to oppose a new nuclear plant in Florida by alleging that one foot of sea-level rise would "put it under water". They said this without realizing, or admitting, that the new power plant units, to be added to the two units that have operated at this site for the past 30 years, would be built 26 feet above sea level, a height providing a margin far exceeding even the most draconian future sea-level rise projections. The group also failed to disclose that sea-level rise was already considered and analyzed in detail by technical experts as part of the Site Certification Process conducted by the Department of Environmental Protection and an independent administrative law judge who then recommended approval of the proposed site.

The informed environmental community, once opposed to nuclear energy, has now largely come full circle on utilizing science and the atom as a clean source of electricity. It has been well-stated by Dr. Patrick Moore, a leading environmental activist the last half century and former co-founder of Green Peace: "My opinion that nuclear energy is safe, clean and sustainable was formed in the mid-1990s during the reconsideration of energy policy in light of climate change.... It is obvious that nuclear energy, when replacing fossil fuel technology, reduces CO2 emissions by more than 95 percent. My primary reasons for supporting nuclear energy are that it is superior to other technologies as a long-term, cost-effective, safe and clean source of electrical power."

Of course, all opinions, and the authors of those opinions, must be shown respect. Everyone should be heard. But, we should also apply a reasonable level of fact-checking to help gauge the strength of opinion-based arguments, particularly in the context of policy decisions that depend on technical accuracy. Nuclear energy and the environment are examples. When it comes to the environment and providing clean, emission-free supplies of electricity, nuclear is not a "losing proposition." To the contrary, all of us who care about the environment, including activists, lose if we do not deploy more nuclear energy in the future.

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Source: http://www.miamiherald.com, 08 September 2015.

OPINION – Minhaz Merchant

Why India Needs to Call Pakistan's Nuclear Bluff Once and for All

In a statement issued, Pakistan's National Security Advisor Sartaj Aziz said India shouldn't take his country for granted. Pakistan, he added grimly, has nuclear weapons. Other members of the Pakistani establishment have made similar statements in the recent past. But as Pakistan's army chief General Raheel Sharif knows perfectly well,

Islamabad cannot use its nuclear stockpile - not even the small tactical battlefield nuclear weapons Pakistan is developing. The reason is simple: A retaliatory nuclear strike by India would cripple Pakistan. The Americans know this. So do the Russians and the British. And of course, so does Pakistan.

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Farooq Abdullah, the former chief minister of Jammu and Kashmir, had this to say about Sartaj Aziz's nuclear threat in an interview with Sagarika Ghose in *The Times of India*: "When a senior diplomat, a former foreign minister, talks about nuclear weapons, it's crazy. May I remind Sartaj Aziz about Hiroshima and Nagasaki? Does he want to bomb J&K? India also has a bomb. When I went to Pokhran after the tests were conducted, I remember Vajpayee's words: 'He said we aren't the ones to use this first, we have this as a deterrence, only to tell people don't take us for granted. We can defend ourselves.' I want to tell Aziz don't think of the bomb because innocents will die. Sartaj Aziz saab you too will die if the bomb falls." So is Pakistan's nuclear threat mere bluster? The short answer: yes.

In a recent article in the *Indian Express*, journalist Praveen Swami wrote why a Pakistani nuclear reprisal to a conventional Indian military attack would result in its annihilation: "Ever since Modi took power last year, Pakistan has demanded negotiations, seeing them as a cushion against possible Indian strikes in the face of a major terrorist attack. Large swathes of its troops tied down in counter-insurgency duties, the Pakistan army would be hard pressed to resist even a limited Indian push in areas like Kashmir's Neelam Valley. Though Pakistan often threatens nuclear reprisal, it knows it would be hard pressed to deliver on this threat in all but the most catastrophic scenarios, for the simple reason that annihilation would follow in short order.

The truth is nuclear armed adversaries have engaged in small conventional wars: China and Russia clashed on the Ussuri river in the 1950s, and India and Pakistan themselves in 1999." And yet, Pakistan continues to develop nuclear warheads at a rapid pace. Recent reports suggest it will have over 300 nuclear weapons within ten years - more than France or Britain. In a country beset by home-produced terrorism, there is always the danger that some of the small tactical nuclear weapons will fall into terrorists' hands and be used against Pakistan itself. Rawalpindi has a secure nuclear command and control centre. But breaching these safeguards by disgruntled elements with terrorist links can't be ruled out.

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A recently declassified CIA document reveals that former Prime Minister Indira Gandhi mulled, before abandoning, an air strike on Pakistan's nascent nuclear weapons programme in 1983. According to one report, Israel offered, "as late as 1984", to bomb Pakistan's principal nuclear facility in Kahuta if India allowed "its jets refueling assurance, but India demurred."

***Terrorism - War by other Means*:** Pakistan created the Taliban in the early-1990s. Breakaway fractions of this terrorist group like the Tehreek-e-Taliban are relentlessly targeting Pakistan's armed forces. December will mark the first anniversary of the brutal Peshawar massacre. The Tehreek-e-Taliban murdered over 130 Pakistani school children, mostly those from families in Pakistan's armed forces. After years of battling these terrorists - terrorists the Pakistani army has created and nurtured - they remain a serious

threat. Over a third of the Pakistani army is tied down fighting them and other militant groups across the country. Since the Narendra Modi government took office fifteen months ago, Pakistan has tested its will with ceasefire violations across the LoC and the IB. In October and November 2014, the BSF retaliated strongly to unprovoked Pakistani firing which caused several Indian casualties. The retaliation resulted in a large number of Pakistani fatalities as well.

The Pakistani army and the ISI have helped launch a series of terrorist attacks on Indian soil. The same pattern has been repeated over the past few days. The increased infiltration by militants trained in terror camps on Pakistani territory has caused the deaths of Indian civilians, including women and children. Two captured terrorists, Naveed and Sajjad, have confessed under interrogation to being trained by the Lashkar-e-Taiba, the terrorist group the Pakistani army nurtures with funding, training and logistical support. Pakistan, which has never won a war against India in 68 years, uses such proxy terror groups to wage a low-intensity conflict without commiting the Pakistani army to a war it cannot win. Terrorism and veiled nuclear threats are used by Pakistan in an attempt to balance the asymmetry between the two countries' armed forces.

Not true. Pakistan is the victim of its own terrorism; India in sharp contrast is the victim of Pakistani terrorism. India doesn't send terrorists across the border to kill Pakistani civilians. Pakistan does. To equate the two is a standard manufactured response of the Pakistani establishment - for instance, citing Indian involvement in Balochistan without providing a shred of evidence.

***Now to the Myths*:** There are four myths in the India-Pakistan relationship that the army, ISI and civilian leadership of Pakistan carefully nurse. They need to be dispelled.

Myth 1: "Pakistan, like India, is also a victim of terrorism."

Not true. Pakistan is the victim of its own terrorism; India in sharp contrast is the victim of Pakistani terrorism. India doesn't send terrorists across the border to kill Pakistani civilians. Pakistan does. To equate the two is a standard manufactured response of the Pakistani establishment - for instance, citing Indian involvement in Balochistan without providing a shred of evidence. The Pakistani army meanwhile continues to commit genocide in Balochistan. It does not need India to spark an insurgency among the Baloch - they have been fighting Pakistan's occupation of their country which Rawalpindi forcibly annexed nearly a year after Independence. Remember: Balochistan comprises 44 per cent of Pakistan's total land area. Peter Tatchell, the human rights activist, writes: "Balochistan was never part of the British Indian Empire. From 1876, it was a self-governing British protectorate, with Britain pledging to guarantee its security against external aggression. In August 1947, Britain granted Balochistan independence separately from India and Pakistan as it did with Nepal. This independence was short-lived. On April 1, 1948, Pakistan sent troops to conquer the Baloch people. They have remained there ever since, blanketing the country with hundreds of military garrison posts to suppress the people."

Myth 2: "Jammu and Kashmir is disputed territory."

It is, but not in the way Pakistan thinks. All United Nations resolutions require Pakistan, as a first step, to vacate PoK. Once Pakistan does, all issues related to Jammu & Kashmir can be discussed. In short, PoK constitutes the core dispute in relation to Jammu and Kashmir. All else flows from it. Thus when engagement in the form of a composite dialogue resumes between India and Pakistan, as External Affairs Minister Sushma Swaraj noted - and once Islamabad adheres to the red lines drawn by New Delhi - Kashmir will be on the agenda, beginning with PoK. The soft, porous border proposal discussed between General Pervez Musharraf and Prime Minister Dr. Manmohan Singh nearly a decade ago is a non-starter. If implemented, it will give terrorists a free pass to Jammu and Kashmir. Over time Pakistan will

occupy the entire state using a "creeping" strategy. It is fortunate Musharraf was removed from office before he could pull further wool over Dr Singh's eyes.

Myth 3: "Reciprocity."

India granted MFN status to Pakistan in 1996. Pakistan promised reciprocal status several years ago. That promise remains unfulfilled. If Islamabad continues to be in breach of that commitment, India could consider withdrawal of MFN status to Pakistan. India is already moving ahead in the SAARC without Pakistan in crucial economic and diplomatic areas. This ostracism could apply to other fields. Cricketing ties, for example, will remain suspended. Can India really play cricket with a country that sends terrorists to kill and maim Indian women and children? Pakistan joined world cricket's boycott of South Africa's apartheid regime throughout the 1970s and 1980s. The pressure - including a global boycott of South Africa's all-white rugby team and other sanctions - led eventually to the abolition of apartheid. Politics and sport should, ideally, not be mixed - except in the case of extreme injustice, such as apartheid, or state-sponsored terrorism.

Myth 4: "We are the same people".

We are not. Pakistan has over 190 million people: 90 million Punjabis, 45 million Sindhis, 30 million Pashtuns, 14 million Baloch, and 11 million others. Punjabis dominate the army, civil service and business. Indians are far more diverse - in language, culture and religion. As the 2011 census reveals, India has nearly as many Muslims (172 million) as Pakistan - which is several times the number of Muslims India had in 1947. Pakistan too had a significant minority (of Hindus) in 1947. Today Hindus make up less than 1.6 per cent of Pakistan's population. In Pakistan, the Baloch are butchered, Shias murdered, Ahmadis outcast. No, we are not the same people.

Source: http://www.dailyo.in/, 04 September 2015.

OPINION – Jeffrey Donovan

IAEA Sees Global Nuclear Power Capacity Expanding in Decades to Come

Nuclear power's global expansion is projected to continue in the coming decades—albeit at a slowing pace—amid challenges including low fossil fuel prices, a sluggish world economy and the legacy of Japan's Fukushima Daiichi accident, according to an IAEA study released on 8 September, 2015. Each year, the IAEA publishes projections of the world's nuclear power generating capacity in Energy, Electricity and Nuclear Power Estimates for the Period up to 2050, now in its 35th edition.

"Several factors indicate that nuclear energy will play an important role in the world's energy mix in the long run," said IAEA Deputy Director General Mikhail Chudakov, Head of the Department of Nuclear Energy. "These factors include the volatility of fossil fuel prices, nuclear power's role in greenhouse gas reduction, energy supply security, population growth and demand for electricity in the developing world." The latest projections point to slower growth in nuclear power, in keeping with the trend since the 2011 Fukushima Daiichi accident. The world's nuclear power generating capacity is projected to expand by between 2.4% and 68% by 2030, compared with the previous estimate of between 7.7% and 88% from last year.

The latest projections point to slower growth in nuclear power, in keeping with the trend since the 2011 Fukushima Daiichi accident. The world's nuclear power generating capacity is projected to expand by between 2.4% and 68% by 2030, compared with the previous estimate of between 7.7% and 88% from last year.

Uncertainty related to energy policy, license renewals, shutdowns and future constructions accounts for the wide range. The projections, developed by world experts who gather each spring at the IAEA, take into account developments through April 2015. The low case, designed to produce "conservative but plausible" estimates, assumes a continuation of current market, technology and resource trends with few changes to policies affecting nuclear power. The high case assumes current rates of economic and electricity

demand growth, particularly in Asia, will continue while also including a bigger role for nuclear power in climate change mitigation strategies worldwide.

***Factors Weighing on Growth*:** Over the short term, several factors are weighing on the growth prospects of nuclear power, leading to temporary delays in deployment of some plants, according to the report. These factors include low prices for natural gas, subsidized renewable energy sources, and the global financial crisis, which presents hurdles for capital-intensive projects. Heightened safety requirements as a result of stress tests introduced in the wake of the Fukushima accident and the deployment of advanced technologies have also contributed to delays. The estimates also factor in the likely future retirement of many of the world's 438 nuclear reactors currently in operation, more than half of which are over 30 years old. Despite the need to replace scores of retiring reactors, nuclear power is still set to maintain—and possibly increase—its role in the world's low-carbon energy mix, according to David Shropshire, Head of the IAEA's Planning and Economic Studies Section.... "Our low-case projections show that for every unit of capacity retiring, another unit will be built somewhere in the world by 2030; and in the high case, about 1.7 times the capacity will be constructed."

The IAEA recently updated one of its key guidance documents, Milestones in the Development of a National Infrastructure for Nuclear Power, which forms the basis for its assistance to these "newcomer" countries. They include the United Arab Emirates, which is building its first reactors and contributing to projected growth in the Middle East and South Asia According to the 2015 projections, capacity growth in that region is projected at 25.9 GW(e) by 2030 in the low case from the current 6.9 GW(e), rising to 43.8 GW(e) in the high case. One gigawatt is equal to one billion watts of electrical power.

***Regional Breakdown*:** Although not a major driving force, the policies and developments in the more than 30 countries that are considering or planning their first nuclear power plant also play a role in the projections. The IAEA recently updated one of its key guidance documents, Milestones in the Development of a National Infrastructure for Nuclear Power, which forms the basis for its assistance to these "newcomer" countries. They include the United Arab Emirates, which is building its first reactors and contributing to projected growth in the Middle East and South Asia, where India is driving the expansion and constructing six new reactors. According to the 2015 projections, capacity growth in that region is projected at 25.9 GW(e) by 2030 in the low case from the current 6.9 GW(e), rising to 43.8 GW(e) in the high case. One gigawatt is equal to one billion watts of electrical power. Growth is also projected in Eastern Europe. The region includes Russia, with nine reactors under construction, as well as Belarus, which is building its first reactors. The low case estimate projects regional capacity growth to 64.1 GW(e) by 2030 from the current 49.7 GW(e), with capacity increasing to 93.5(e) in the high case. The Far East, meanwhile, will see the biggest expansion, especially in China and the Republic of Korea, which are building 24 and four reactors respectively.

In the low case, capacity in that region is seen growing to 131.8 GW(e) by 2030 from the current 87.1 GW(e). In the high case, capacity is projected to expand to 219 GW(e). By contrast, Western Europe is eyeing the biggest decline. With Germany, the region's biggest economy, announcing plans to phase out nuclear power in the wake of the Fukushima accident, the low projections estimate a decrease in Western European capacity to 62.7 GW(e) by 2030 from the current 113.7 GW(e). The high projections estimate a decline to 112 GW(e). North American capacity is also seen falling in the low case to 92 GW(e) by 2030 from the current 112.1 GW(e). The high projections, however, estimate an increase to 139.7 GW(e). "It's important to understand that these projections, while carefully derived, are not predictions," said Andrii Gritsevskyi, Energy System Analyst in the

IAEA's Planning and Economic Studies Section. "The estimates should be viewed as very general growth trends, whose validity must be constantly subjected to critical review."

Source: https://www.iaea.org , 08 September 2015.

BALLISTIC MISSILE DEFENCE

ISRAEL

Israel Unveils 'Iron Dome of the Sea' Missile Defense System

The Israeli Navy on has unveiled its new missile defense system 'Iron Dome of the Sea' in a defense exercise. The defensive exercise was conducted, focusing on Israel navy's Shayetet 13 unit expelling terrorists, who had captured the Yam Tethys gas field off the coast of the southern Israeli port. Navy commander Brigadier Ram Rotberg listed potential threats to Israel, including the Russian-made Yakhont anti-ship missile, reportedly in the hands of Hezbollah and the Syrian army, after leading a tour of military correspondents. Another is the Iranian Ababil drone, which is believed to have been upgraded with navigation capabilities and the ability to carry tens of kilos of explosives....

The Navy also unveiled its counter-measures, including the Barak 8 multi-purpose seaborne missile defense system, which protects gas rigs in the sea just as the Iron Dome protects assets on land. For defending its oil rigs against air attacks, Israel should design a defense system more effective than its Iron Dome because Iron Dome works just a small fraction of the time, according to a Massachusetts Institute of Technology analysis.

Source: http://www.defenseworld.net, 04 September 2015.

RUSSIA–IRAN

Russia, Iran Ready to Sign S-300 Delivery Contract in Near Future

A contract between Moscow and Tehran on the delivery of Russian S-300 missile defense systems to Iran will be signed in the near future, Russian Deputy Foreign Minister Sergei Ryabkov said on 9 Sep 2015. "The negotiations are continuing, the contract will be signed in the near future. All political decisions have been made, there are no obstacles there," Ryabkov was quoted as saying by Sputnik news website.

In 2007, Iran signed a contract worth $800mln to buy five Russian S300 missile defense systems. But the deal was scrapped in 2010 by the then-Russian President Dmitry Medvedev under the pretext of the UN Security Council sanctions, although the UN embargoes did not include defensive military systems. Iran filed a $4bln lawsuit against Russia in the international arbitration court in Geneva. Moscow then struggled to have the lawsuit dropped, including by offering the Tor anti-aircraft systems as replacement, media reported in August, adding that the offer was rejected by Tehran. Yet, some reports said the Antei-2500 could be a better solution. The system does not formally fall under the existing sanctions against Iran while still being useful for the Middle-Eastern country.

The S-300 is a series of Russian long range surface-to-air missile systems produced by NPO Almaz, all based on the initial S-300P version. The S-300 system was developed to defend against aircraft and cruise missiles for the Soviet Air Defense Forces. Subsequent variations were developed to intercept ballistic missiles.

While the S-300 was developed for the use by missile defense forces, the Antei-2500 was specifically tailored for the needs of ground forces, which could also be an advantage for Iran, known for its large land force. Later, Iran rejected the offer, stressing that it would not change its order. The S-300 is a series of Russian long range surface-to-air missile systems produced by NPO Almaz, all based on the initial S-300P version. The S-300 system was developed to defend against aircraft and cruise missiles for the Soviet Air Defense Forces. Subsequent variations were developed to intercept ballistic missiles. The S-300 system was first deployed by the Soviet Union in 1979, designed for the air defense of large industrial and administrative facilities, military bases, and control of airspace against enemy strike aircraft. In the meantime, Iran designed and developed its own version of the S-300 missile shield, known as Bavar (Belief) 373. The Iranian

version has superior features over the original Russian model as it enjoys increased mobility and reduced launch-preparation time.

In April, Iranian Defense Minister Brigadier General Hossein Dehqan announced that Iran would receive the S-300 air defense systems from Russia in 2015. "We will sign the contract for the delivery of S-300 air defense systems with the Russian side during an upcoming visit to Moscow in the current year," Brigadier general Dehqan said prior to his departure to Moscow to take part in 2015 International Moscow Security Conference. He noted that the Iranian Defense Ministry had studied the details of the S-300 contract and the air defense system would be delivered to Iran before the end of 2015. "What is important is that since the beginning of talks about this contract, the Americans and the Zionist regime voiced their opposition to the sale of S-300 systems and called for a halt to the implementation of the contract," Brigadier General Dehqan said.

In April, President Putin removed the ban on the delivery of the missile shield to Iran. Following the announcement, Brigadier General Dehqan said "the decree came as an interpretation of the will of the two countries' political leaders to develop and promote cooperation in all fields". Putin's decision was announced hours after relevant reports said the Kremlin also plans to supply China with the advanced S-400 air defense system. Putin said during a meeting with Iran's Admiral Shamkhani that his decision to deliver the sophisticated S-300 air defense missile systems to Tehran set a role model at global class that every nation should remain loyal to its undertakings…. In January, Tehran and Moscow signed an agreement to broaden their defensive cooperation and also resolve the problem with the delivery of Russia's S300 missile defense systems to Iran.

Putin's decision was announced hours after relevant reports said the Kremlin also plans to supply China with the advanced S-400 air defense system. Putin said during a meeting with Iran's Admiral Shamkhani that his decision to deliver the sophisticated S-300 air defense missile systems to Tehran set a role model at global class that every nation should remain loyal to its undertakings.

The agreement was signed by General Dehqan and his visiting Russian counterpart General Sergei Shoigu in a meeting in Tehran in January. The Iranian and Russian defense ministers agreed to resolve the existing problems which have prevented the delivery of Russia's advanced air defense systems to Iran in recent years. The two sides also agreed to broaden their defense cooperation and joint campaign against terrorism and extremism.

Source: http://missilethreat.com, 09 September 2015.

NUCLEAR STRATEGY

ISRAEL

Police Probe Nuclear Spy Vanunu over Israeli TV Interview

Israel Police on 9 September opened an investigation into whether Mordechai Vanunu, who exposed Israel's nuclear weapons program in 1986 and was jailed for treason, broke the terms of his release from jail in an interview that he gave Israel's Channel 2 on 4 September. Channel 2 reported that the investigation was initiated at the request of the Shin Bet security service. It said that while all the material broadcast in the interview had been approved by Israel's military censor, the police had asked for the full, unedited footage of the interview, apparently because it was suspected that Vanunu discussed matters he was barred from talking about.

A former technician at Israel's Dimona nuclear reactor, Vanunu was released from jail after 18 years in 2004, but the conditions of his parole included significant limitations on his freedom of movement and banned him from giving interviews on various topics. Israel has repeatedly denied Vanunu permission to leave the country, in part because he allegedly still constitutes a security threat, and a further High Court hearing on the

issue is expected in October. In 2007, Vanunu was jailed for an additional six months for violating his release provisions when he was found traveling toward the West Bank city of Bethlehem, away from his home in Jerusalem.

The interview on 4 September marked a departure from Israel's decades of official nuclear secrecy, in that Israel's military censors permitted Vanunu to speak on primetime Israeli television about the nuclear program. A Dimona technician from 1976 to 1985, Vanunu revealed overwhelming evidence of Israel's nuclear program to Britain's *Sunday Times* in 1986, including dozens of photographs, enabling nuclear experts to conclude that Israel had produced at least 100 nuclear warheads. To this day, Israel has never acknowledged that it has a nuclear arsenal, instead maintaining a policy of "nuclear ambiguity" while vowing that it would not be the first to use nuclear weapons in the Middle East.

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The timing of the interview 4 September appeared particularly telling, as Israel internalizes that its lobbying efforts have likely failed to prevent Congress approving the world powers' nuclear deal with Iran, which Prime Minister Benjamin Netanyahu has called "a historic mistake." Netanyahu has repeatedly pledged to act alone if necessary to ensure Iran does not obtain nuclear weapons. Two weeks ago, the military censor allowed the broadcast on TV of tape-recorded conversations in which former defense minister Ehud Barak describes at least three occasions in 2010, 2011 and 2012 when Israel ostensibly came close to striking at Iran's nuclear facilities.

Vanunu, now 60, was interviewed in a friend's apartment in Tel Aviv. He described a gradual process by which he decided, over his years working at Dimona, that he had an obligation to reveal "to the citizens of Israel and the Middle East and the world" the nature of what he called "the powder keg" at Dimona — "the quantities, the numbers, the types.

Vanunu, now 60, was interviewed in a friend's apartment in Tel Aviv. He described a gradual process by which he decided, over his years working at Dimona, that he had an obligation to reveal "to the citizens of Israel and the Middle East and the world" the nature of what he called "the powder keg" at Dimona — "the quantities, the numbers, the types." "I saw what they were producing and its significance," he said, calling Israel's nuclear program "a failure" that he had "exposed" — in an apparent critique of Israel's entire nuclear strategy. He talked about bringing "an ordinary camera, a Pentax" into the facility where he had been working for nine years, soon after learning that he was going to be fired, and shooting two rolls of film — about 58 pictures. He wasn't suspected because he was a familiar figure, and he habitually carried a backpack with his university text books into the facility. He then kept the film for months, taking it overseas to Thailand, Nepal and Australia before finally getting it developed in Sydney. "I took a risk that the film would be ruined," he said.

He denied that he had exposed the nuclear program as revenge for losing his job, and also denied being paid any money by the Sunday Times or others for his revelations. His long-term lawyer, Avigdor Feldman, he said, works for him voluntarily. Vanunu described how he was lured from London to Rome and arrested — befriended in a Mossad honeytrap by an agent (Cheryl Bentov) he knew as Cindy.... He claimed that he...never suspected that she was an agent until he woke up after three days drugged on a boat

bound for Israel.... He said his punishment — with 11 of his 18 years in jail served in solitary — had been radically unfair. He paid the price, he said, of destroying the global reputation of the Shin Bet domestic intelligence service by exposing the nuclear secret. "I went against the Shin Bet, the Mossad, the army," he said. He said he was "not a foreign spy," but rather someone who acted as he did "because I thought it was the right of the people to know.... I, Mordechai Vanunu, took the responsibility to inform the citizens of the nuclear danger.... Dimona is very dangerous," he said. That role ended the day the Sunday Times published the story, he said. "I'm done with this story. I have no more secrets." Therefore, he pleaded that he be allowed to leave Israel and live abroad...and asked: "Why are they still keeping me here?"

Seeking to ease Indo-Pak tensions after a war of words, Prime Minister Nawaz Sharif said on 9 Sep 2015, Pakistan's nuclear weapons were "not against anyone" and asserted that his country would maintain minimum credible deterrence for strategic stability in South Asia.

Source: http://www.timesofisrael.com/, 09 September 2015.

PAKISTAN

Pakistan's Nuclear Arsenal not Against Anyone: Nawaz Sharif

Seeking to ease Indo-Pak tensions after a war of words, Prime Minister Nawaz Sharif said on 9 Sep 2015, Pakistan's nuclear weapons were "not against anyone" and asserted that his country would maintain minimum credible deterrence for strategic stability in South Asia. Sharif's remarks came as he chaired the meeting of NCA. The meeting agreed that Pakistan seeks peace and strategic stability in South Asia as cornerstone of its policy and it considers conflict resolution as the means to achieve this objective, Radio Pakistan reported. Sharif said that Pakistan would maintain minimum credible deterrence for the sake of strategic stability in the region.... The meeting also said Pakistan will adhere to the policy of avoiding an arms race in the region. Sharif's comments came amid heightened tensions between India and Pakistan along the LoC. Indian army chief General Dalbir Singh had said that India is prepared for short wars. In response, Pakistan army chief General Raheel Sharif had warned India of "unbearable damage" in case of a "long or short" misadventure by the "enemy".

During today's (9 Sep 2015) meeting, Director General SPD Lieutenant General Mazhar Jamil briefed the participants about the security and safety of Pakistan's nuclear weapons. He said that a security force of 30,000 is safeguarding the strategic arsenal. Official sources said that Sharif was satisfied with the security of the nuclear weapons. NCA reaffirmed the resolve to maintain full spectrum deterrence capability to deter all forms of aggression. The meeting said that Pakistan is a responsible nuclear country. It said Pakistan is determined to play its role with reference to nuclear non-proliferation. Pakistan believes in resolution of conflicts through negotiations, it said. Earlier, a report by US think-tanks said that Pakistan was on course of having about 350 nuclear weapons in about a decade, the world's third-largest stockpile after the US and Russia and twice that of India.

Source: http://economictimes.indiatimes.com, 09 September 2015.

NUCLEAR ENERGY

CHINA

China to Resume Inland Nuclear Power Development

China is likely to restart its nuclear power program in inland areas in the next five years to meet power demands, according to several sources. Over ten provinces have plans for nuclear power projects, with 31 proposals having already passed the initial-feasibility test. China aims to lift its operational nuclear power installed capacity to 58 million kilowatts by 2020, and those under construction will reach 30 million kilowatts according to the 13th Five-Year Plan, which will

be released in October. Inland nuclear power projects stalled during the 12th Five-Year Plan period over safety concerns, after an earthquake in 2011 in Fukushima, Japan, severely damaged its nuclear plant. Now momentum is gathering.

The rapid economic growth of inland provinces means the area will need more power, and China should develop inland nuclear power projects to meet rising total and per capita energy consumption, according to a research report from Chinese Academy of Engineering. Three inland nuclear power plants in central China's Hunan, Hubei and Jiangxi provinces are likely to be the first projects to resume construction, according to an industry insider, who spoke on condition of anonymity.

"The safety of inland nuclear power plants is guaranteed to strictly adhere to regulations and discharge standards," said Su Gang, a senior engineer with China Nuclear Power Engineering Co. Ltd. In addition, more safety requirements for nuclear power development will be issued by the government. There are also plans to establish a national emergency and rescue team with about 320 members to deal with nuclear power accidents. Construction of the Xipu fast neutron reactor nuclear power demonstrative project in Fujian Province, east China, could start at the end of 2017 if the project is approved in its final stages, China Business News quoted Xu Mi, an academic with the Chinese Academy of Engineering, as saying. The demonstrative nuclear power project, designed with 600,000kw installed capacity, will feature the fast neutron reactor, which is regarded as the most advanced nuclear power technology in the world.

The safety of inland nuclear power plants is guaranteed to strictly adhere to regulations and discharge standards," said Su Gang, a senior engineer with China Nuclear Power Engineering Co. Ltd. In addition, more safety requirements for nuclear power development will be issued by the government. There are also plans to establish a national emergency and rescue team with about 320 members to deal with nuclear power accidents.

While developing nuclear power projects in the domestic market, China is stepping up overseas projects and global cooperation to export its advanced equipment. China General Nuclear Power Corp. (CGN) on 7 September 2015 inked a memorandum of understanding (MOU) with Kenya Nuclear Power Bureau on cooperative projects in the African nation, marking another milestone for China's nuclear power overseas strategy following other collaboration agreements including one signed with Pakistan in August.

Source: http://www.news.xinhuanet.com, 09 September 2015.

INDIA

Nuclear Deals See Power Capacity Hit 90% from 60% Five Years Ago

The country has not yet seen a new nuclear power plant as an outcome of the Indo-US civil nuclear deal that was signed a decade ago, but it has overcome the shortage of uranium as fuel to generate power from existing plants. In June, India's nuclear power generation capacity shot up to 90% from being below 60% just five years ago.

The country has not yet seen a new nuclear power plant as an outcome of the Indo-US civil nuclear deal that was signed a decade ago, but it has overcome the shortage of uranium as fuel to generate power from existing plants. In June, India's nuclear power generation capacity shot up to 90% from being below 60% just five years ago.

"In mid-2008, nuclear plants were running at half capacity due to chronic shortage of fuel. The average load factor for India's power reactors was below 60% over 2006-2010, reaching only 40% in 2008," said KL Ramakumar, radiochemistry and isotope group, BARC, on the second day of Engineers' Conclave. Ramakumar added, "Following the Nuclear Suppliers Group's waiver in September 2008, the scope for supply of nuclear fuel from other countries demonstrates

the fruits that have gone into realising the civil nuclear cooperation."

Till date, India has signed civil nuclear cooperation agreements with Russia, US, France, UK, South Korea, Canada, Czech Republic, Argentine, Kazakhstan, Mongolia and Namibia. Stating that the deal paved the way for facilitating supply of uranium fuel to India's reactors under IAEA safeguards, Ramakumar said, "The (power) generated from safeguarded civil nuclear fuel reactors resulted in an increase in electricity production, and additionally no extra contribution to greenhouse gases." In addition to importing uranium, negotiations are also underway with France, US and Russia for the construction of imported light water reactors. The atomic energy establishment plans to import 28 light water reactors with an installed capacity of 35,500 megawatts.

With the aim to localise manufacturing nuclear components, the Indian industry has signed Memorandums of Understanding with international players. "Within six years since 2009, the civil nuclear cooperation has led to seamless integration of India into global nuclear entities to realize our energy independence and security."

Source: http://www.hindustantimes.com, 08 September 2015.

Kudankulam Nuclear Power Plant to Restart Generation Only by Month-End

First unit of the Kudankulam nuclear power plant is set to restart generation only by September-end. Though the unit was to get operational by first week of September, officials say it is not ready yet. It was shut on June 24 for annual maintenance and was initially expected to restart generation by August. But by middle of August, the project officials said it would be delayed and the generation would start only by August end or September first week. "There were some technical problems with Unit 1 and that has been solved. Now fuel loading has started and it will take at least two weeks before the unit is loaded fully," said an official. Some internal inspections were going on and that will be completed along with loading of the fuel, he said. The first unit had started commercial operation in December 2014.

Tamil Nadu is entitled to get 563MW from Unit 1 and it would be helpful if the generation started soon, said a Tangedco official. "This is the month when wind power generation stops and if the demand is around 12,000MW, we need all sources including Kudankulam to supply power without any break. Compared to last year, we have two more units from Neyveli Lignite Corporation operational in Tuticorin," said the official. The two units, which have a combined capacity of 1000MW, supply 250MW to TNEB. Wind power generation on 3 September was less than 100MW. ...

Source: http://timesofindia.indiatimes.com/, 05 September 2015.

IRAN

Iranian Energy Industries Reach Out to Europe, Latin America Ahead of Nuclear Deal's Adoption

While crippling international sanctions against Iran remain mostly in place, it appears the country's powerful energy market has already begun to spread its influence worldwide. Iran's English-language state news agency Mehr released a flurry of articles on 8 September 2015, highlighting the country's recent major forays into the world's energy markets, despite having been shut out for years because of international sanctions over its disputed nuclear program. According to the news agency, which is run under the auspices of Iran's Islamic Ideology Dissemination Organization, Mexican Labor Secretary Alfonso Navarrete Prida recently visited Tehran for talks with Iranian Oil Minister Bijan Zanganeh aimed at increasing cooperation in related industries, which the report said were suspended for "decades."

The two energy-rich countries, Iran a member of the Organization of Petroleum Exporting Countries and Mexico is not, discussed increasing cooperation in oil industries once sanctions against Iran are removed. Mexico opened its massive energy reserves to foreign development

just last year, after 75 years of exclusive control by the Latin American country's oil monopoly, PEMEX. US firms have also scrambled to tap Mexico's newly open market. Also, Austrian President Heinz Fischer led an Austrian delegation to Iran, the first visit by a Western head of state in a decade.

During those few days, the heads of influential energy engineering universities in Iran and Austria signed a memorandum of understanding to increase joint research in science and engineering, and several lucrative deals were inked. According to Mehr, Abdolnabi Hashemi, the head of Iran's Petroleum University of Technology and Gerhard Thonhauser, the head of the Petroleum Engineering Department at Austria's Univeristy of Leoben signed the memorandum, while Austria's Chamber of Commerce said Iranian and Austrian firms from various industries signed $89 million in contracts at a Tehran business forum. According to UPI, Iranian Deputy Oil Minister in charge of international affairs Amir-Hossein Zamani-Nia said the country expected Austrian oil and natural gas company OMV was ready to help Iran double its output.

Business delegations have also traveled to Iran from France and Germany since the nuclear deal was announced on July 14 in Vienna, and Switzerland has already moved to lift some sanctions against the Islamic Republic.

Business delegations have also traveled to Iran from France and Germany since the nuclear deal was announced on July 14 in Vienna, and Switzerland has already moved to lift some sanctions against the Islamic Republic. The director of Iran Power Plant Projects Management Company, Vahid Moayer, on 8 Sep noted Iraq, Oman, Turkmenistan and South American countries as areas for expansion.

Source: https://www.algemeiner.com, 08 September 2015.

JAPAN

IEA Chief Calls Japan's 22% Nuclear Energy Policy 'Realistic'

Fatih Birol, newly installed executive director of the Paris-based International Energy Agency, has said Japan's energy policy following the Fukushima meltdowns provides a "realistic and balanced outlook," underscoring the importance of continued use of nuclear power in the country. In its future energy mix, decided in July, the government plans to have nuclear energy account for 20 percent to 22 percent of the country's total electricity supply in 2030.

This compares with 28.6 percent in the fiscal year that ended in March 2011, the year of the disaster. "I believe Japan without nuclear energy will face major challenges," such as higher energy prices, greater energy security problems and greenhouse gas emissions, Birol, who took office on 1 September, 2015, told Kyodo News by phone. "This plan provides a good prospect for nuclear power, and I believe nuclear power has an important role to play in Japan for the prosperity, cleanness and also the security of the country," he said. ...

In its future energy mix, decided in July, the government plans to have nuclear energy account for 20 percent to 22 percent of the country's total electricity supply in 2030. This compares with 28.6 percent in the fiscal year that ended in March 2011, the year of the disaster. "I believe Japan without nuclear energy will face major challenges," such as higher energy prices, greater energy security problems and greenhouse gas emissions.

Source: http://www.japantimes.co.jp/, 03 September 2015.

JORDAN

Jordan's Plan to Build First Nuclear Power Plant Progressing

The final cost of the project of the first nuclear power plant construction in Jordan will be known in spring 2017 after the preparation of construction documents, said the Head of Russian

State Atomic Energy Corporation "Rosatom" Sergey Kirienko. "We have two years. We started in March 2015, and accordingly by the spring 2017 the feasibility study and a project implementation plan will be finally understandable, after that the government of Jordan will make an appropriate decision, and in accordance with this decision, the cost, the final terms and conditions of the investors' attraction will be fixed," - Sergey Kirienko told reporters.

The government of Jordan plans to build the first nuclear power plant of two units, and at the moment the location have already chosen. "Now we have proceeded to the second stage of the work. Period of time from 2015 till 2017 is the pre-investment stage. Now the engineering survey works is taking place at the site in order to have more accurate data were included in the technical and economic calculation.

In addition, he expressed the assumption that by this date there will be identified the specific investors that will be involved in this project. "Today the Jordanian government admits the possibility of attracting investors, both private and foreign. But again, it is the decision of the government of Jordan," he said. However it is known that the construction of one nuclear power plant unit will cost not less than $5 billion, Jordan plans to construct two power units. ..."In March of this year the key intergovernmental agreement was signed on the results of the tender. Within the tender the government of Jordan has chosen the Russian technology to build first nuclear power station," said S. Kirienko.

The head of Rosatom reminded that the government of Jordan plans to build the first nuclear power plant of two units, and at the moment the location have already chosen. "Now we have proceeded to the second stage of the work. Period of time from 2015 till 2017 is the pre-investment stage. Now the engineering survey works is taking place at the site in order to have more accurate data were included in the technical and economic calculation. The key issue in Jordan is water," he said. Electrical supply is also very important issue, that needs to be solved, noticed S. Kirienko. "This project involves the ability to export electricity. The list of countries which surrounds Jordan, are interested in obtaining electricity, but it requires appropriate consideration," said the head of the corporation.

We therefore think it may be possible (but far from certain) that a few GW of nuclear energy are eventually built but it seems highly unlikely to us that a full 9.6GW programme will ever materialise seen through this lens of political, succession, legal, regulatory, comparative cost and technological change risk that all bear against this programme.

Source: www. saudigazette. com, 06 September 2015.

SOUTH AFRICA

SA Politics Make Full Nuclear Programme Unlikely: Nomura Report

A Nomura Research report released on 8 September, 2015 on South Africa's nuclear programme says the political dynamic in the country is not solidly behind such a programme, even within the African National Congress (ANC) itself, and could even mean "that the government cannot guarantee a majority on the energy portfolio committee within Parliament on this issue". "Adding in civil society protestations and likely legal objections, we see major obstacles to the start of actual construction occurring through the court system and parliamentary censure," writes researcher Peter Attard Montalto. "We therefore think it may be possible (but far from certain) that a few GW of nuclear energy are eventually built but it seems highly unlikely to us that a full 9.6GW programme will ever materialise seen through this lens of political, succession, legal, regulatory, comparative cost and technological change risk that all bear against this programme." "The split that we think exists between the ANC and government on nuclear power is primarily a manifestation of a much deeper KZN/Gauteng ANC divide, in our view, that is playing out into the 2017 elective conference. The KZN faction is backing the government while the

Gauteng faction is showing more scepticism and desire for cost accountability."

"It may well be the first major, public, policy choice area that reflects this deeper split. It means, interestingly, that the government cannot guarantee a majority on the energy portfolio committee within Parliament on this issue. "However it would be a major and serious step for a sub-set of ANC members to vote with the opposition to, say, censure the government on nuclear power or demand certain documents be made public, etc. A clearly unaffordable tender, however, could push them to that point." Montalto writes that this view was only a partial explanation, however, and did not encompass the whole party. "For instance, the recent ANC National General Council discussion documents outlined the need that 'Government must commit to a full, transparent and thorough cost benefit analysis of nuclear power as part of the procurement process, and clarify the status of the update to the Integrated Resource Plan. Government must also announce publicly that nuclear energy can only be procured in line with the legal prescripts and after a thoroughgoing affordability assessment'.

The Nomura reports also says that some elements of the South African government, including the president, were "aggressively" trying to move forwards with 9.6 GW of nuclear procurement, "seemingly against modelling work showing it is likely unnecessary and against cost and rent extraction concerns". "The issue is coming to a head because the government is attempting to progress to tendering in the coming months.

The Nomura reports also says that some elements of the South African government, including the president, were "aggressively" trying to move forwards with 9.6 GW of nuclear procurement, "seemingly against modelling work showing it is likely unnecessary and against cost and rent extraction concerns". "The issue is coming to a head because the government is attempting to progress to tendering in the coming months. "For now policy is, put simply, what the government's stated intention is," writes Montalto.

Source: http://www.timeslive.co.za, 08 September 2015.

NUCLEAR NON-PROLIFERATION

IRAN

US Congressional Republicans Engineer Symbolic Vote Against Iran Nuclear Deal

The US House of Representatives has defeated a resolution backing the nuclear agreement with Iran in a symbolic vote engineered by congressional Republicans who object to the deal. The outcome will have no effect on the agreement. House members defeated the measure 269 to 162 in a strongly partisan vote, part of an effort by Republicans to underscore their objections to the international accord despite a vote in the Senate that blocked a Republican-led effort to kill it by passing a resolution of disapproval. ... Twenty-five Democrats joined 244 Republicans in voting against the resolution. No Republicans voted in favour.

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After a rebellion by some of the most conservative Republicans, party leaders abandoned plans for a House vote on a disapproval resolution, opting for votes on three measures to send a stronger message that a majority of Congress objects to the pact. Members from each party accuse the other of using the dispute for political purposes. Democrats accuse Republicans of leaping to reject the deal and ignoring US allies and international experts who back it. Some also

accused Republicans of politicising the anniversary of the September 11 attacks by holding the votes on that date.

In turn, Republicans accuse Democrats of blindly supporting Democratic president Barack Obama in an agreement they see as going too far in easing economic sanctions on Iran in return for too few concessions on its nuclear program. They also joined with Israeli prime minister Benjamin Netanyahu, who lobbied against the deal, in calling it a threat to his country's existence.

In a second vote, the House voted 247 to 186 to pass legislation that would bar Mr Obama from waiving, suspending or reducing sanctions under the nuclear agreement. That vote was even more strongly partisan. Two Democrats jointed 245 Republicans in voting yes, while all 186 'No' votes were from Democrats. To become law, that legislation would have to be passed in the Senate and then survive a likely veto.

An Israeli diplomatic source who could not be named said Israel was pleased with the outcome of the House votes. Mr Boehner and other Republican congressional leaders are considering more options, including suing Mr Obama, to stop the deal. A disapproval resolution would have derailed the pact by eliminating Mr Obama's ability to waive many US sanctions on Tehran. The three measures considered by the House would have no similar impact on the agreement.

The MPs asked Ali Akbar Salehi, Iranian vice-president and head of the country's Atomic Energy Organization (AEOI) to submit the secret deal to the commission members Salehi has agreed to brief the parliamentary commission about the details of the secret Iran-IAEA agreement. Meanwhile Iran's ambassador to the IAEA Reza Najafi earlier objected to the US Senate's demand for being briefed about the contents of the signed roadmap of cooperation between Tehran and the IAEA.

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Source: http://www.abc.net.au, 12 September 2015.

Iran to Inform MPs on Secret Deal with IAEA

Iranian administration has accepted to inform the Special Parliamentary Commission to Review the JCPOA (Joint Comprehensive Plan of Action), the MP, Hossein Naghavi Hosseini said. Naghavi Hosseini, who is the spokesman of the aforementioned commission, said that the MPs asked Ali Akbar Salehi, Iranian vice-president and head of the country's Atomic Energy Organization (AEOI) to submit the secret deal to the commission members, Tasnim news agency reported on 9 Sep 2015. Salehi has agreed to brief the parliamentary commission about the details of the secret Iran-IAEA agreement, Naghavi Hosseini added. Meanwhile Iran's ambassador to the IAEA Reza Najafi earlier objected to the US Senate's demand for being briefed about the contents of the signed roadmap of cooperation between Tehran and the IAEA. Najafi cautioned the UN nuclear watchdog to avoid disclosing its secret agreements with Tehran to the US. ...

Source: http://en.trend.az/, 09 September 2015.

NUCLEAR COOPERATION

AUSTRALIA–INDIA

Cautious Approval for Australia-India Uranium Trade

An Australian governmental committee has recommended that uranium sales to India should only be allowed to proceed after its concerns about non-proliferation, nuclear regulation and safeguards have been addressed. A bilateral nuclear cooperation agreement opening the door

for Australia to export uranium to India was signed by the two countries' prime ministers in September 2014, and the proposed agreement was tabled before the bipartisan Joint Standing Committee on Treaties (JSCOT) in October. India represents a major potential market for Australia's uranium, but the issue is complicated by India's status as a nuclear-armed country that has not signed the international NPT. JSCOT's inquiry has centred on potential risks arising from India's status.

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India was almost completely excluded from international nuclear trade, including the uranium market, for over three decades until it signed a bilateral nuclear trade agreement with the USA in 2007. Its non-proliferation credentials were subsequently further secured through a safeguards agreement with the IAEA and the 2008 decision by the 45-member NSG to exempt India from its rule of prohibiting trade with non-members of the NPT. After lengthy deliberations lasting well beyond the initially allotted 20 sittings, JSCOT has made a series of recommendations that it says must be met before the treaty is put into force. Central to these are the tightening of concessions granted under India's existing bilateral agreements with the USA and its safeguards agreement with the IAEA. In particular it recommends full separation of India's civil and military facilities, verified by the IAEA, and setting up an independent nuclear regulator.

A bill seeking to establish a new independent and autonomous regulator was submitted to the Indian lower house of parliament, the Lok Sabah, in September 2011 but the process has not been completed. An IAEA-led peer review of India's nuclear regulatory framework earlier this year found a strong commitment to nuclear safety in the country but also recommended that the independence of its nuclear regulator be strengthened.

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It also calls for conditions on routine nuclear inspections and nuclear decommissioning in India to be met. In his foreword to the report, committee chairman Roy Wyatt said the agreement would bring significant benefits to both parties and could potentially double the size of Australia's "nuclear mining sector", but not without risks. ... "The Committee took the time to fully consider the issues raised by this Agreement, and has reached a view that, provided the recommended steps are taken as part of the implementation of the Agreement, it can be ratified and the benefits realised", he said.

Source: http://www.world-nuclear-news.org/, 09 September 2015.

SAUDI ARABIA–SOUTH KOREA

Saudi Arabia and Korea Further SMART Cooperation

The documents were signed in Riyadh by the Korea Atomic Energy Research Institute (KAERI) - designer of the SMART (System-integrated Modular Advanced Reactor) - and Saudi Arabia's

King Abdullah City for Atomic and Renewable Energy (KA-CARE). They were signed in the presence of KA-CARE president Hashim Abdullah Yamani. The contracts follow a MOU the two countries signed on 3 March that will see them jointly promote the reactor in the global market. The MOU had followed an inter-governmental agreement the two countries signed in 2011 on the development and implementation of nuclear energy for peaceful purposes. The newly signed contracts "come as a package", KA-CARE said, and include cooperation and joint construction in designing the core of a SMART reactor.

SMART technology is considered to be one of the very latest Generation IV nuclear reactor designs, KA-CARE said. SMART is a 330 MWt pressurised water reactor with integral steam generators and advanced safety features.

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Still, most Western firms have said they will wait until the nuclear agreement is implemented on the ground and sanctions are removed, which is widely expected to happen in 2016, before they make any firm business commitments in the Islamic Republic. The WKO, Austria's chamber of commerce, said 15 deals and memoranda of understanding would be signed and they would comply with existing US and European Union sanctions.

KA-CARE stressed the importance of the cooperation between the two countries in building human resources capacity in the Kingdom via technology transfer from South Korea. Their cooperation is, KA-CARE said, "assurance of the importance of utilizing alternative sources for generating electricity, water desalination through the uses of atomic and renewable energy for the sake of maintaining hydrocarbon resources for the coming generations or avail it for export or for industry." It will also help attract investment and employment opportunities "through the localization of alternative energy industries in the Kingdom", it said.

Source: http://www.world-nuclear-news.org/ , 03 September 2015.

AUSTRIA–IRAN

Austrian Companies to become First Western Firms to Formally Sign Ties with Iran after Nuclear Deal

Austrian companies planned to sign deals with Iranian partners on 8 September 2015, becoming the first Western firms to put down definite stakes in the Islamic Republic since it reached a nuclear deal with big powers in July. Austrian businesses in industries including car parts, information technology and engineering were to conclude deals worth 80 million euros ($89 million) at an economic forum in Tehran, Economy Ministry spokeswoman Waltraud Kaserer said. It was part of a three-day visit by Austrian President Heinz Fischer, the first by a Western head of state in more than a decade and a sign of the cordial relations neutral Austria has kept through years of high tension between Iran and the West.

Tehran has bustled with Western business delegations since the diplomatic breakthrough with six world powers in which it agreed to curb its disputed nuclear program in exchange for an end to sanctions, easing its international isolation. Still, most Western firms have said they will wait until the nuclear agreement is implemented on

the ground and sanctions are removed, which is widely expected to happen in 2016, before they make any firm business commitments in the Islamic Republic.

The WKO, Austria's chamber of commerce, said 15 deals and memoranda of understanding would be signed and they would comply with existing US and European Union sanctions. "The end effect is to create the structures for the years ahead," Reinhold Mitterlehner, Austria's deputy chancellor and economy minister, told reporters in the Iranian capital. He said the partly state-owned Austrian energy group OMV was just making contacts as part of the delegation. WKO chief Christoph Leitl said seven more Austrian trade missions to Iran were scheduled for the second half of the year. Iranian President Hassan Rohani said the recent period of sanctions was an exception in a centuries-long relationship between Iran and Austria, and he hoped Fischer's visit signaled a new period of cooperation. ...

Source: http://www. haaretz. com , 08 September 2015.

CHINA–KENYA

Kenya Signs Nuclear Power Deal with China, Looks to have Power Station Up by 2025

Kenya has signed a deal with China as part of the east leading African economy's plans to have a nuclear power station by 2025, the Kenya Nuclear Electricity Board (KNEB) said on 10 September, 2015. Kenya plans to set up its a first nuclear power plant with a capacity of 1000 MW by 2025, the board said, with ambitions to boost that to 4000 MW by 2033, and to make nuclear electricity "a key component of the country's energy" production. The MoU, signed in China, will enable Kenya to "obtain expertise from China by way of training and skills development, technical support in areas such as site selection for Kenya's nuclear power plants and feasibility studies," the KNEB statement said.

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Kenya has already signed nuclear power cooperation agreements with Slovakia and South Korea, it added. As part of those deals, over 10 Kenyan students are studying nuclear power engineering in South Korea. As well as oil-fired stations, Kenya has in recent years focused power efforts on boosting sources from renewables such as geothermal, hydro and wind power. With a fast-growing population, demand is climbing rapidly, and the country's hydro-electric capacity is strained by droughts and the impact of deforestation on rivers…. Around three in ten Kenyans have access to electricity, according to the World Bank, but that drops to only two in ten in the poorest rural areas. At present, South Africa is the only country in sub-Saharan Africa with active nuclear power plants.

Source: http://mgafrica.com/, 10 September 2015.

RUSSIA–SAUDI ARABIA

Kingdom, Russia form Panel to Discuss Nuclear Energy Projects

Saudi Arabia will form a committee with Russia to work on state nuclear energy projects, Al-Watan daily reported. Rosatum State Nuclear Energy Cooperation International Projects Development Director Nikolai Drozdov said Russia is laying the foundation of long-term cooperation with Saudi Arabia. ...

Russia has signed an agreement with Saudi Arabia to work on nuclear projects for peaceful purposes. "The agreement included expansion in the field of nuclear fuel, establishment of desalination plants, exploring the interdisciplinary fields of nuclear energy and other domains such as medicine and agriculture and training sessions between the two countries," said Drozdov. The Kingdom has expressed that it would like to tackle its electricity problem and find a solution for it through the nuclear agreement. "The Kingdom plans to meet at least 20 percent of its electricity needs from nuclear power generated in the Kingdom. The nuclear power projects will empower the Saudi economy as generating energy will become proficient," said Drozdov.... The Kingdom plans to establish 16 nuclear power plants within the next 25 years. "Considering the lack of infrastructure in the Kingdom, its goal is quite ambitious. However, there is a great need for Saudi Arabia to establish nuclear power plants," said Drozdov.

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Source: www.saudigazette.com, 05 September 2015.

NUCLEAR TERRORISM

NATO

Weapons of Mass Destruction Non-Proliferation Centre Beefs Up Response

NATO's Weapons of Mass Destruction Non-Proliferation Centre (WMDC) recently marked the organization's 15th anniversary by vowing to continuing to improve its response to chemical, biological, nuclear and radiological threats. Recent attacks in Europe prove that terrorism is still a live threat. Although no terrorist group is known to have acquired nuclear weapons, they do consider CBRN material as weapons. "The current threats to western societies but also to Muslim countries range from Syria's chemical weapons program to terrorist groups such as ISIL and Al-Qaida and 'lone wolf' actors," Ambassador Sorin Ducaru, assistant secretary general for Emerging Security Challenges at NATO, said.

Toxic chemical and biological weapons are less expensive to create since components are easily purchased. This makes biological warfare a much more likely possibility from terrorists. "Horrible pictures of wounded children and women from cases reported to the members of the UN Security Council are testimony to the real threat," Wolfgang Rudischhauser, director of the NATO WMDC, said. "Doubts also still remain whether all chemical weapons and nuclear materials in Syria have been declared. Materials could still be falling into the hands of ISIL, a group that has shown by its atrocities committed, including the live burning of a Jordanian pilot, beheadings of men and recently of women, that it is ready to commit the most horrible crimes against humanity."

In response to the ongoing threat of terrorism, NATO and the WMDC have, among other things, built up the BMD capability with interceptors and sensors on NATO territory and at sea; established the Combined Joint CBRN Defense Task Force, a NATO military body specifically trained to deal with CBRN events; and established a deployable analytical laboratory, which can be transported rapidly to investigate, collect and analyze samples for identification of nuclear, biological or chemical agents.

NATO's WMDC believes the possibility of a nuclear attack from terrorists is low, thanks to the challenges in creating and distributing such a weapon, but is still on guard. "Attackers could potentially use easily available CBRN material, such as chlorine, radioactive sources from X-ray machines in hospitals, or highly transmittable viruses such as Ebola and MERS," Rudischhauser said.

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Source: http://bioprepwatch.com, 04 September 2015.

NUCLEAR DISARMAMENT

GENERAL

NAM Hails Iran Deal, Calls for Nuke-Free Middle East

As Iran's nuclear issue is resolved following a historic agreement with the global powers, the NAM has called for the establishment of a nuclear weapons-free zone in the Middle East. In a statement on 9 Sep 2015, NAM hailed the mid-July accord between Tehran and the P5+1 group reached in Vienna, noting Tehran's "choices and decisions" should be respected in regard to the peaceful application of nuclear energy. "States' choices and decisions, including those of the Islamic Republic of Iran, in the field of peaceful uses of nuclear technology and its fuel cycle policies must be respected," the statement said.

NAM called on Iran to "enhance its cooperation" with the IAEA "to provide credible assurances regarding the absence of undeclared nuclear material and activities in Iran in accordance with international law." NAM said it would back a nuclear-weapons-free zone in the Middle East, calling it a "positive step towards attaining the objective of global nuclear disarmament.

NAM, whose rotating presidency has been assumed by Iran, also expressed confidence in the IAEA's "professionalism and impartiality" in the process that aims to clarify Iran's nuclear activities, saying it should be "based on sound technical and legal grounds." "There should be no undue pressure or interference in the agency's activities, specially its verification process, which would jeopardize the efficiency and credibility of the agency," said the statement, read out by Iran's Ambassador to the IAEA Reza Najafi at a monthly meeting of the agency's Board of Governors. ... NAM further called on Iran to "enhance its cooperation" with the IAEA "to provide credible assurances regarding the absence of undeclared nuclear material and activities in Iran in accordance with international law." ... NAM said it would back a nuclear-weapons-free zone in the Middle East, calling it a "positive step towards attaining the objective of global nuclear disarmament."

Source: http://www.presstv.ir/, 09 September 2015.

NUCLEAR SAFETY

GENERAL

Meltdown-Proof Nuclear Reactors Get a Safety Check in Europe

For years nuclear scientists have talked about a revival of molten salt reactors, which are powered by a liquid fuel rather than solid fuel rods, that will help spark the long-awaited "nuclear renaissance." Recent developments indicate that this alternative nuclear power technology is finally making gradual progress toward commercialization.

A consortium of research institutes and universities working under the aegis of the European Commission, including the Technology University of Delft (TU Delft), in the Netherlands, France's National Center for Scientific Research, and the Commission's Joint Research Center, in Brussels, in August embarked on a four-year research program designed to demonstrate the safety benefits of molten salt reactors. Called "Safety Assessment of the Molten Salt Fast Reactor," or Samofar, the effort will lead to the building of a prototype reactor in the early 2020s if all goes as planned.

First built and tested in the 1960s, at Oak Ridge National Laboratory, molten salt reactors would be the first genuinely new technology for nuclear power generation to reach the market in the last three decades. Producing zero carbon, they use a radioactive solution that blends nuclear fuel with a liquid salt. They can run on uranium, but are also ideally suited for thorium, an alternative nuclear fuel that is cleaner, safer, and more abundant than uranium. Molten salt reactors also offer inherent safety advantages: because the fuel is liquid, it expands when heated, thus slowing the rate of nuclear reactions and making the reactor self-governing. And they're built like bathtubs, with a drain in the bottom that's blocked by a "freeze plug." If anything goes wrong, the freeze plug melts and the reactor core drains into a shielded underground container. They can operate as producers of thermal power or as "burner" reactors that consume nuclear waste from conventional reactors. Essentially, molten salt reactors could solve the two problems that have bedeviled the nuclear power industry: safety and waste.

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While the advantages of molten salt reactors have been understood for some time, they remain at the R&D stage because, in the post-Fukushima era of low-price natural gas, it's hard to convince investors to fund any alternative nuclear technology. In the United States it can take a decade or more, and hundreds of millions of dollars, just to bring new a reactor design to the Nuclear Regulatory Commission for a license application. Samofar is focused on fast reactors, which are more efficient than conventional light-water reactors and can breed fissile elements from nuclear waste. The researchers will build experimental laboratory facilities—not, at least for the next few years, an actual working reactor—to test the geometry of the freeze plug, the coatings of vessel and pipe materials, the behavior of the liquid fuel during circulation and draining, and other key safety metrics.

The project represents "the first step towards large scale validation and demonstration of the technology," says Jan-Leen Kloosterman, a professor of nuclear physics at TU Delft and the lead researcher on Samofar. "Hopefully the results will also lead to much more commitment from the large nuclear industry." Getting that commitment remains an uphill struggle, but a report funded by the United Kingdom government and released recently by Energy Process Developments, a London-based research firm, reviews technologies from six potential molten salt reactor developers—Flibe Energy, Moltex Energy, ThorCon Power, Seaborg Technologies, Terrestrial Energy, and Transatomic Power—and finds encouraging signals for molten salt reactors over the next 10 years (see "Experiments Start on a Meltdown-Proof Nuclear Reactor"). After a decade of work, the companies "are ready now with proposals for the next step to implementation, namely engineering design to prepare the safety case and to proceed to design and build."

The most advanced program for liquid-fuel, thorium-based reactors is in China, where the Shanghai Institute of Applied Physics reportedly plans to build a prototype in the next few years. The Shanghai program is a collaboration with Oak Ridge National Laboratory, where molten salt nuclear technology was born.

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Source: http://www. technology review. com, 04 September 2015.

JAPAN

Japan Lifts Evacuation Order for Town Near Nuclear Reactor Disaster Site

Japan's government on 5 September, 2015 lifted a 4 1/ 2-year-old evacuation order for the northeastern town of Naraha that had sent all of the town's 7,400 residents away following the disaster at the nearby Fukushima nuclear plant.

Naraha became the first to get the order lifted among seven municipalities forced to empty entirely due to radiation contamination following the massive earthquake and tsunami that sent the plant's reactors into triple meltdowns in March 2011. The central government has said radiation levels in Naraha have fallen to levels deemed safe following decontamination efforts. According to a government survey, however, 53 percent of the evacuees from Naraha, which is 20 kilometers (12 miles) south of the nuclear plant, say they're either not ready to return home permanently or are undecided. Naraha represents a test case, as most residents remain cautious amid lingering health concerns and a lack of infrastructure. In the once-abandoned town, a segment of a national railway is still out of service, with the tracks covered with grass. Some houses are falling down and wild bores roam around at night.

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Only about 100 of the nearly 2,600 households have returned since a trial period began in April. Last year, the government lifted evacuation orders for parts of two nearby towns, but only about half of their former residents have returned. ... About 100,000 people from about 10 municipalities around the wrecked plant still cannot go home. Matsumoto said that fear of radiation and nuclear safety was still present, and that the town had a long way to go in its recovery. Naraha will be without a medical clinic until October, and a new prefectural hospital won't be ready until February…. Residents are given personal dosimeters to check their own radiation levels. To accommodate their concerns, the town is also running 24-hour monitoring at a water filtration plant, testing tap water for radioactive materials….

Source: http://www. foxnews. com/ , 05 September 2015.

FRANCE

France Nears Completion of Chernoby Steel Confinement Structure

Two French companies completed the preliminary construction of a giant arch-shaped steel structure over the Chernobyl nuclear power plant, the European Bank for Reconstruction and Development (EBRD) said on 8 September, 2015. ... Bouygues and Vinci, part of the French-led Novarka consortium, are working on a "sarcophagus" measuring 656 feet by 623 feet. Novarka took on the New Safe Confinement (NSC) known as the "Shelter Object 2" late in 2007. The $1.5-billion NSC was initially expected to be completed this year but

The 30-story arch would arrive at Chernobyl disassembled and would be installed over the fourth nuclear reactor in the fall of 2016. The construction exceeds the Stade de France national stadium in size and weighs five times more than the Eiffel Tower. In addition to a state-of-the-art frame and auxiliary structures, the NSC is expected to be lined with special padding to protect the environment from the crumbling Shelter Object.

postponed due to funding gaps. The new casing project is intended to cover the existing "Shelter Object" concrete dome built following the April 26, 1986 Chernobyl disaster that saw one of its four nuclear reactors explode.

A Bouygues representative told RIA Novosti the 30-story arch would arrive at Chernobyl disassembled and would be installed over the fourth nuclear reactor in the fall of 2016. The construction exceeds the Stade de France national stadium in size and weighs five times more than the Eiffel Tower. In addition to a state-of-the-art frame and auxiliary structures, the NSC is expected to be lined with special padding to protect the environment from the crumbling Shelter Object. The NSC will also be equipped with high-tech ventilation, as well as temperature and humidity regulation systems. The new structure is part of the $2.4-billion Chernobyl Shelter Fund's Shelter Implementation Plan. EBRD has assumed responsibility for managing the plan.

Source: http://sputniknews.com/, 08 September 2015.

JAPAN–VIETNAM

Japan, Vietnam Hold Training Courses on Nuclear Power Safety

The Vietnam Agency for Radiation and Nuclear Safety (VARANS) and the Japan Nuclear Regulation Authority (NRA) held training courses on preventing the risk of fire at nuclear power plants in Hanoi from September 7-10. The courses were specifically designed for VARANS officials on the assessment of the safety analysis report (SAR) and Japan's experience in the field, reported the *Saigon Giai phong* newspaper.

According to Deputy Head of the VARANS Can Van Minh, Vietnam is pushing ahead with activities to prepare for the establishment of the first nuclear power plant in the country, emphasizing safety as the most important factor. The agency is currently building technical capacity to serve the safety assessment, he said, adding that the transfer of knowledge, training and expertise in the field from nuclear power developers like Japan is essential.

Source: http://www. english. vietnamnet. vn, 09 September 2015.

NUCLEAR WASTE MANAGEMENT

USA

Washington Sues Feds Over Safety of Nuclear Waste Tanks

Washington State is suing the federal government again over cleanup at the Hanford Nuclear Reservation. This time the state is suing over the danger posed to workers by vapor releases from underground waste storage tanks. In a federal lawsuit filed 2 September, state Attorney General Bob Ferguson says the US Department of Energy has known about the problem of vapors sickening workers at the site since the late 1980s, but hasn't fixed it. There were more than 50 reports of workers being exposed to vapors between January 2014 and April 2015. Ferguson says the state of Washington is taking action to ensure the federal government protects Hanford workers now and in the future.

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Source: http://www.kxly.com/, 03 September 2015.

DOE Takes First Steps Toward a Post-Yucca Future

A Department of Energy team has begun crafting strategies for reaching out to communities that might accept and store nuclear waste. "The team is actively developing plans and performing technical analysis of various components of an integrated waste management system, as well as

evaluating the Department's next steps in the consent-based siting process," a DOE spokesman confirmed in an email.

The team was created as part of a plan outlined by the Obama administration two years ago that calls for creating a permanent geologic wastes repository by 2048. The plan's mum on the fate of the Yucca Mountain, Nevada, nuclear waste repository. The plan springs from recommendations released by President Obama's Blue Ribbon Commission on America's Nuclear Future in 2012. The 15-member panel — which included then-MIT professor and now-DOE chief Ernest Moniz — was asked to find alternatives for storing more than 65,000 metric tons of nuclear waste after the administration declared Yucca Mountain unworkable. The commission's report says US waste policy needs to be revamped, regardless of Yucca, and called on the administration and Congress to quickly develop storage sites and dumps. It calls for a consent-based process for siting one or more temporary storage sites and geologic repositories. So far, communities in Texas and New Mexico have offered to host temporary storage sites.

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Moniz said earlier this year that DOE would soon begin identifying and vetting a defense-waste repository and separate sites for one or more interim facilities for old fuel from shuttered reactors, but he also made clear DOE would need congressional approval — and more authority — to build the facilities. Sources say the new DOE team is part of larger changes afoot at the department. DOE, they say, is also tasking other staffers to take closer look at managing used reactor fuel. Andrew Griffith, a former Navy officer who is currently DOE's associate deputy assistant secretary for fuel cycle technologies in the Office of Nuclear Energy, will lead a new effort focusing on storage of reactor waste, sources said. He will report to John Kotek, the office's acting assistant secretary, who staffed the Blue Ribbon Commission. In recent months, the White House has taken other steps to tackle defense and commercial waste and begin exploring the possibility of burying radioactive nuclear waste far below the Earth's surface in deep, geologic bore holes. But Yucca backers question just how meaningful this latest step will be – and what it means for the Nevada repository. ...

Source: http://www.eenews.net, 09 September 2015.

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UK

Public to Get a Say on Burying Nuclear Waste Underground

A public consultation on the specifics of a geological disposal facility for nuclear waste has been launched by the Nuclear Decommissioning Authority. The consultation outlines proposals for assembling and presenting information on the geology of England, Wales and Northern Ireland to help decide where a long term underground store for nuclear waste might be sited.

The 12 week consultation is being run by Radioactive Waste Management (RWM), a part of the Nuclear Decommissioning Authority (NDA), and is one of the first steps to ensure that the public plays a role in the project to plan, build and operate a geological nuclear disposal facility. Geological disposal involves placing waste deep underground to isolate

hazardous nuclear materials from the surface and contain it while its radioactivity naturally reduces. Professor Cherry Tweed, RWM's chief scientific advisor, said: "The facility we are planning will be up to 1,000 metres underground. To put that into perspective, the deepest part of the London underground is about 65 metres deep.

"Geological disposal is internationally accepted as the most practical and safest way to manage the most radioactive of our waste. Although around 90% of the hazard decreases in around 1,000 years, the residual amount needs to be taken care of for hundreds and thousands of years. That's where geological disposal comes in. Isolation to get it away from the surface environment and containment to keep it there for long timescales so the natural radioactive decay process can take place and the waste to no longer poses a hazard." Natalyn Ala, Geological Disposal Facility siting director at RWM told PE, "The consultation will collect existing and relevant geological information to inform early discussions with communities about their potential suitability to host a geological disposal facility." Ala said that the UK is following the lead of other countries such as Sweden, France and Canada which have already developed GDFs. "These countries have shown that the public want to learn more about geology and get involved in the process. Geology is just one aspect of the facility. It also involves public and team support, working together with engineers, scientists and geologists to design those facilities."

After the conclusion of the 12 week consultation will come a "guidance" stage. RWM will work closely with the British Geological Survey (BGS), who hold definitive information on British geology to develop short regional summaries of geology, supported by maps and including an explanation of what this means for the long-term safety of geological disposal. RWM is conducting the national geological screening exercise as part of a commitment outlined in the government's White Paper: "Implementing Geological Disposal." Prior to this publication, another consultation had revealed a public desire for information on geology to be made available to help inform community decision making. The RWM will then ask for feedback on its proposed approach to national geological screening, the sources of information it plans to use, how it presents the information.

Source: http://www.imeche.org/, 09 September 2015.

Centre for Air Power Studies

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