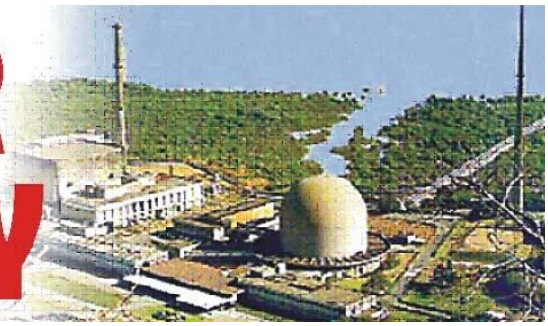
NUCLEAR SECURITY



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

Vol 10, No. 09, 01 March. 2016

OPINION – Manpreet Sethi

Pak's Nuclear 'Normality' Through External Deals: Chasing a Chimera

Several recent writings have recommended how Pakistan could and should be accommodated into the nuclear mainstream. Mark Fitzpatrick, a non-proliferation analyst at the IISS, London, had advocated this through his Adelphi paper entitled "Overcoming Pakistan's Nuclear Dangers" in 2014. More recently in 2015, Toby Dalton and Michael Krepon made a similar case in a Carnegie publication entitled "A Normal Nuclear Pakistan."

Interestingly, Pakistan's military and diplomatic elite have been demanding the same ever since India earned itself a nuclear cooperation agreement with the USA and an exceptionalisation from the NSG. This din reached a crescendo in October 2015 just before PM Sharif was to visit Washington. US newspapers hinted at the possibility of a US-Pak nuclear deal as a means to get Pakistan to limit expansion of its nuclear arsenal. Though nothing came out of this then, Pakistan continues to voice the demand. On 12 February 2016, Pak foreign secretary Aizaz Ahmad Chaudhry, lamented that a "discriminatory approach has impacted strategic stability" and argued that as a "*legitimate and normal nuclear power* with legitimate needs for nuclear energy," Pakistan too was entitled to a deal with US.

As is evident from the expressions used by Western analysts and Pakistani officials, both seem to emphasise the adjective "normal" nuclear state for Pakistan. But there is a huge difference in how they use it. While Pakistan claims that it already is one, writings from US think-tanks suggest that the country could and should be offered some external inducements to change its nuclear behaviour into becoming normal. This dichotomy in approach of both is where the dilemma lies. Pakistan believes it *deserves* a deal while the West contends that it is *offering*

Western analysts and Pakistani officials, both seem to emphasise the adjective "normal" nuclear state for Pakistan. But there is a huge difference in how they use it. While Pakistan claims that it already is one, writings from US think-tanks suggest that the country could and should be offered some external inducements to change its nuclear behaviour into becoming normal.

a favour in exchange for a set of conditions.

Dalton and Krepon have identified five conditions for such an offer. These include shifting declaratory policy from "full spectrum" to "strategic" deterrence; committing to a recessed deterrence posture and limiting production of short-range delivery vehicles and tactical nuclear weapons; lifting Pakistan's veto on FMCT negotiations and reducing or stopping fissile material production; separating civilian and military nuclear facilities; and signing the CTBT without waiting for India. The basic argument behind these demands is to put a halt to the Pakistani slide towards operationalisation of tactical nuclear weapons that, the West fears, would lead to a command and control nightmare, raising the dangers of nuclear terrorism, which are not lost on the US.

The basic argument behind these demands is to put a halt to the Pakistani slide towards operationa lisation of tactical nuclear weapons that, the West fears, would lead to a command and control nightmare, raising the dangers of nuclear terrorism, which are not lost on the US.

Keeping the above in mind, the US is protecting its national interest by trying to find ways of curtailing the expansion of the Pakistani nuclear arsenal. But the questions that need to be answered from a wider perspective are whether a Pakistan that believes all is fine with its nuclear behaviour and strategy can indeed be amenable to change through external inducements in the nuclear arena? Would an offer from the West change the basic drivers of Pakistan's nuclear policy? Is it at all possible to 'positively shape' Pakistan's nuclear posture by offering incentives from outside?

The answer to each of these questions is in the negative because Pakistan's nuclear posture is driven by exaggerated threat perceptions and a self-created paranoia, largely by the Army. Its nuclear strategy is premised on the projection of easy and early use of nuclear weapons, or nuclear brinksmanship or a sense of instability, including through show of battlefield use of nuclear weapons. At every opportunity, Pakistan officials do not forget to remind India and the 'concerned' West of its nuclear-armed status. All this, while Rawalpindi continues to uphold its support for terrorism beyond its own borders. Unless these drivers change, and that can only happen from within Pakistan, no influence from the outside can alter the country's nuclear posture. Therefore, to believe that offering a nuclear deal would placate Pakistan into becoming 'normal', is taking a rather shallow view of Pakistan's deep-rooted security psyche.

In fact, to do so is not even desirable since it is only likely to further postpone a much needed introspection by Pakistan's strategic community of the dangers created by its self-generated threat perceptions and sponsorship of terrorism. It could well embolden Pakistan, even make it more adventurous, seeking to push the envelope of its demands even further. The inability and unwillingness of the international community to deal with Pakistan's past proliferation and ongoing nuclear brinkmanship with a firm hand, and instead consider offering it nuclear cooperation, contributes to the impression that countries with nuclear weapons can 'get away with' activities that may otherwise be considered unacceptable. International security will have to bear the consequences of this in the years to come as Pakistani behaviour is copied by others to brandish nuclear weapons as a potent bargaining chip to seek political concessions.

The inability and unwillingness of the international community to deal with Pakistan's past proliferation and ongoing nuclear brinkmanship with a firm hand, and instead consider offering it nuclear cooperation, contributes to the impression that countries with nuclear weapons can 'get away with' activities that may otherwise be considered unacceptable.

Of course, the 'West' has the prerogative to grant or deny nuclear cooperation to a country based on its assessment of how this would serve its interest without violating own guidelines and international

obligations. But to believe that such an offer could reorient Pakistan's fast evolving force posture that boasts of a capability to build tactical nuclear weapons and refuses to allow negotiations on a FMCT, is certainly naive. Such a concession could most likely be interpreted and projected by Pakistani military elite as a victory of sorts and make them more risk prone, not less. This would only sustain the Army's predominance over its national security policy, including continued support to terror groups that in their mind serve a purpose. But as has been seen in the last few years, terrorists are quick to switch loyalties and cannot be straitjacketed into clear cut categories. The nuclear dangers, consequently, will only multiply.

If things have to change, Pakistan will have to alter, first of all, its own sense of threat perceptions. It is a bit far-fetched to assume that a state that has shown such irresponsible behaviour and that yet refuses to accept its irresponsibility, nor change its behaviour, can be made normal by inducements.

The only long-term solution lies in Pakistan's reconsideration of its own threat perceptions. This propensity for harboring terrorism and using it to feed a paranoia from India cannot be changed from the outside. Pakistan has opted for a nuclear strategy that its Army considers best suited to its national interest. Therefore, its definition of national interests must change for its nuclear posture to be different. Outside inducements cannot influence this.

To be fair, it is up to the people of Pakistan to choose their 'normal'. It is their right and responsibility to understand the nuclear dangers they face and plan their own course correction. It has to be Pakistan's choice to want to become a normal state, not a status that can be conferred or a condition that can be imposed from the outside by offering a nuclear deal. The West, or the rest, can only help Pakistan by offering to assist in building capacities to handle its myriad political, social and economic challenges. These are far bigger millstones around Islamabad's neck than the imaginary phantoms that Rawalpindi conjures, essentially to sustain its own authority and influence in the domestic power structure.

Pakistan's well-wishers, within the country and beyond, must help reorient the national security discourse toward a broader normalisation of the state and its polity. Keeping it in good humour by bestowing goodies such as the nuclear deal or more F-16s and other conventional arms is not going to be helpful, neither to the people of Pakistan and nor to its neighbours. The only beneficiaries would be the small nuclear elite within Pakistan that has a narrow, warped view of the nation and its future.

It is ironic that the country that was held out by the Harvard Development Advisory Group in the 1960s as a 'model developing country' with an average annual economic growth of 6 per cent has today degenerated into such a sad economic state. Much of this has to do with the country's obsession with parity with India that leads to an over spending on defence, including on its nuclear weapons programme, while ignoring domestic economic growth and development.

If things have to change, Pakistan will have to alter, first of all, its own sense of threat perceptions. It is a bit far-fetched to assume that a state that has shown such irresponsible behaviour and that yet refuses to accept its irresponsibility, nor change its behaviour, can be made normal by inducements. It is certainly like chasing a chimera of Pakistan's nuclear normality. And 'bestowing normalcy' through external sops in the absence of change will only make the prospect of real change dimmer, not brighter.

Source: http://www.ipcs.org/article/pakistan/paks-nuclear-normality-through-external-deals-chasing-a-chimera-4992.html, 22 February 2016.

OPINION – Evan Bayh

Nuclear Plants Contribute to Greener Energy Future

Earlier this February, leaders from academia and the energy industry met at the Wharton School of the University of Pennsylvania with the Initiative for Global Environmental Leadership centre to discuss the importance of existing nuclear energy

plants in the commonwealth and the nation. The common refrain we heard was that nuclear power is clean, safe, and reliable. In Pennsylvania, nuclear produces 93 percent of the state's carbon-free electricity. This is especially important for Pennsylvania as it works to meet the carbon-reduction goals set forth by the Environmental Protection Agency's Clean Power Plan, which rightly emphasizes the need to move toward carbon-free technologies to preserve the environment.

In fact, state regulators are currently developing state-specific plans to comply with the rule, which will take into account feedback from industry leaders, citizens, and others who gathered at over a dozen listening sessions held across the state. And the state Department of Environmental Protection, which is in charge of drafting the plan, will need to work through a number of issues as it puts pen to paper, including whether or not to adopt a "mass-based" compliance approach to meeting the goals set forth by the rule.

State regulators are currently developing state-specific plans to comply with the rule, which will take into account feedback from industry leaders, citizens, and others who gathered at over a dozen listening sessions held across the state.

Of course, different solutions will work for different states, but in Pennsylvania, a mass-based approach works best. This would put a cap on the amount of carbon that can be released into the atmosphere and would encourage preservation of the state's existing nuclear energy plants for their overwhelming environmental benefits.

What's more, a recent report by the Brattle Group found that average annual carbon dioxide emissions would be about 52 million tons greater absent the power generation of Pennsylvania's nuclear plants. This is worth an additional $2.24 bn annually if valued at the US government's estimate of the social cost of carbon.

It's also worth noting that the state's nuclear plants account for 34 percent of its electricity, meaning they are a critical part of the state's diverse energy mix and help power the daily lives of families and businesses. A diverse fuel mix also helps ensure that Pennsylvania residents enjoy lower electricity bills and aren't overly reliant on any one source of electricity.

For all these reasons, it's quite clear that nuclear energy should remain part of Pennsylvania's energy portfolio, and a mass-based approach would help facilitate this. Nuclear energy has been part of the commonwealth for decades, and it is important that Pennsylvanians continue to reap nuclear's environmental and reliability benefits for years to come. I hope that events like the one we had at Wharton will encourage positive discussion around our nuclear energy plants to help work toward a cleaner and greener energy future in the state.

Source: http://www.philly.com/philly/opinion/20160222_Nuclear_plants_contribute_to_greener_ energy_ future.html, 22 February 2016.

OPINION – Maasoum Marzouk

A Nuclear Solution for Regional Problems?

The streetwise say "trade takes talent;" academics say "politics is the art of the possible;" experts say "the history of international relations is a history of balance of power;" reality says "you are only worth what's in your pocket;" Menachem Begin said "A good Arab is a dead Arab;" Gamal Abdel-Nasser said "what was taken by force can only be returned by force;" Sadat said, "the October War is the last war;" a Palestinian woman screamed as an Israeli bulldozer destroyed her home in front of her eyes, "Save us, Arabs!"

Each of the above quotes could take an entire article, or several, or a book, or several, to explain and discuss what is a Herculean task. It would be foolish to dive into this raging sea which will only likely calm down on the Day of Judgment. There are, however, some scattered islands where one can rest and contemplate, as long as you don't become too optimistic and believe there is a magic potion to treat all the ailments of humanity.

There is, however, a guaranteed recipe to heal

the people of the Middle East from all of their ailments. Namely, to continue in their mad actions that are evolving into sectarian wars of total destruction, or that the region is struck with enough nuclear bombs to annihilate every person and rock like the peoples of Aad and Thamud.

It is ironic that the nuclear club is lobbying against the spread of nuclear weapons because they know that the nuclear NPT is essentially an agreement of subjugation by the First Party, the nuclear countries, of the Second Party, the rest of world who are outside the club. Articles 2 and 3 of the NPT state that non-nuclear countries are obligated to abandon their sovereign right to manufacture nuclear weapons, and allow inspections by the IAEA.

In return, nuclear club members are bound by three obligations: first, assist non-nuclear countries to develop the peaceful use of nuclear energy, including providing technical information (articles 4 and 5); second, continuing to negotiate in good faith to end the nuclear race (Article 6); third, not assist any country (outside the club) to manufacture or acquire nuclear weapons (Article 1).

Israel did not sign the NPT, although there is no doubt that it is currently an associate member of the nuclear club. There is also no doubt that it received assistance to achieve this from nuclear countries, most notably France, in violation of Article 1 of the NPT and despite its fluid and incomprehensible motto that it "will not be the first to introduce nuclear weapons to the Middle East.

Israel did not sign the NPT, although there is no doubt that it is currently an associate member of the nuclear club. There is also no doubt that it received assistance to achieve this from nuclear countries, most notably France, in violation of Article 1 of the NPT and despite its fluid and incomprehensible motto that it "will not be the first to introduce nuclear weapons to the Middle East." This may not confirm that Israel possesses nuclear weapons, but it also does not deny it possesses them.

Perhaps the direct meaning of this motto is that Israel will not use this weapon unless it is threatened with a nuclear weapon. That could not be so if it did not possess it. And thus, the matter appears farcical, even though it touches the destiny of millions in the Middle East.

It is an ironic marvel that the leaders of Israel travel to world capitals to talk about absent "security" and the need for "steps to build trust" in order for Israel to feel secure about its existence. Security is not a cake that exclusively belongs to one party and not others, because this would mean "imposing security by force." This can never mean security or stability, whether for Israel or anyone else.

Regional security is impossible without a balanced contractual relationship that will never be achieved through an agreement, where one side receives full guarantees and has the right to possess tools that threaten its neighbour's security at any time. One of the most important steps of confidence building in the peace process is to "breakdown the barrier of fear and doubt," and this will not happen without Israel signing the NPT and allowing inspections of nuclear facilities. It must also pledge to dispose of its stockpile of weapons of mass destruction, cut down its military spending and remove all its colonies in the West Bank.

Regional security is impossible without a balanced contractual relationship that will never be achieved through an agreement, where one side receives full guarantees and has the right to possess tools that threaten its neighbour's security at any time.

If politics is the art of the possible, it is also "the will and determination to make changes." If the history of international relations is one of balance of power, then balance of power is not a fixed rigid formula and all relevant parties must understand that nothing stays the same. If force alone does not guarantee legitimacy, then those who have the right will not benefit from its legitimacy if this right is not protected by force. Finally, if a good

Arab is a dead Arab, as Begin said, there are millions of Arabs who refuse to die while they are alive or live as if they were dead. As for Sadat's motto that the October War is the last, Israel has proven that this is nothing more than empty words.

The war in the region has not stopped since that date. And if the Palestinian woman who beseeched Arabs goes unanswered, then coming generations will seek to possess the necessary power, including a nuclear bomb, to force Israel to give back the right of the people, irrespective of the consequences. The worst-case scenario is in fact the one that will make everyone rest in eternal peace.

Source: The writer is former assistant to Egypt's foreign minister. http://english.ahram.org.eg/NewsContentP/4/188082/Opinion/A-nuclear-solution-for-regional-problems.aspx, 25 February 2016.

OPINION – Matthew McInnis

Iran's Elections: A Test of Obama's Nuclear Deal

Will President Obama's gamble that the Iranian nuclear deal will make the Middle East safer pay off? Elections will be a key test, and the first ones – the Iranian elections – start 26 February. One of Obama's responses to critics who said the US gave up too much to achieve the Iranian nuclear deal was that it could allow Iran to "fully rejoin the community of nations." But will it? If projections for Iranian national elections are any indication, the answer may be no. On February 26, Iranian voters will elect new members to both its Parliament and the Assembly of Experts – a deliberative body made up of 88 theologians. The problems start with the fact that the regime disqualified roughly half of the candidates who applied to run in the parliamentary elections, and reformist candidates were strongly represented among the disqualifications.

The resulting Parliament could be just as conservative as the current one, and certainly no more amenable to President Hassan Rouhani's vision for an Iranian economy more open to the rest of the world. The Assembly of Experts is anticipated to remain solidly conservative. This could have important ramifications for the selection of the Assembly's new chairman and its Board of Governors. The pre-election disqualifications prevent many of the moderate or reformist-minded candidates most aligned with Rouhani's vision for greater integration with the world from running.

The races in Tehran will be the most competitive, with that district still sporting candidates open to limited economic and social reform. These are the few contests to watch to see how conservative the Assembly could swing. Any fundamental changes in the Iranian regime's ideology, domestic agenda or foreign policies are unlikely to occur under this Supreme Leader. Obama claims to understand this. At most, we will see more tactical shifts to de-escalate with the West for specific strategic goals, as witnessed during recent negotiations with the US to secure relief from nuclear-related sanctions.

Parliament's weight in Iran's government is difficult to measure. On the one hand, the body controls the state budget and confirms government ministers. On the other, Parliament at times seems little more than a venue for the regime's various factions to criticize the sitting government, and for the more extreme elements of Iran's political spectrum to let off steam. The body is at best a lagging indicator of how far the real powers that be – the Supreme Leader and the inner circle around him – will allow the Iranian political system to evolve.

More critically, the Assembly of Experts is tasked with selecting Iran's next supreme leader. The current Supreme Leader, Ayatollah Ali Khamenei, was hospitalized in September 2014, probably for surgery related to prostate cancer. Some initial reports hypothesized that his condition might be curable, but more recently there has been speculation about who will replace him after unconfirmed reports that his illness is getting worse. The contradictory and hazy nature of the reports only highlights the challenge in understanding the Iranian regime.

The managed evolution of Iran's political and clerical classes makes it unclear whether the Assembly's "selection" of the next supreme leader will occur in the private voting style of a papal conclave, or whether it will be simply a

rubber stamp of a candidate whose selection is coordinated by the regime's power centers.

The long game is shaping what happens after Khamenei's death. Obama has implied that he hopes bringing Iran back into the international fold will spur positive internal political change and encourage Tehran to become a more responsible player in the region. As with Cuba, engagement rather than isolation is seen as the most powerful weapon against rogue states. These are the tenets of the Obama doctrine for regime change.

The Supreme Leader wants none of this. Khamenei is very conscious that reintegration with the global economy risks inviting a flood of Western ideas that could further erode the political elites' commitment to Iran's revolutionary ideals. In response to sanctions relief, Khamenei has backed an anti-foreign influence campaign marked by increased political arrests and executions, as well as provocative missile launches and military drills. These are not signs of a new era of openness or cooperation with Iran.

The long game is shaping what happens after Khamenei's death. Obama has implied that he hopes bringing Iran back into the international fold will spur positive internal political change and encourage Tehran to become a more responsible player in the region.

Maybe Obama is right, and engagement will eventually bring moderation in Tehran's policies. Or perhaps Khamenei and his fellow elites are savvy enough to use the financial resources and diplomatic capital accrued by the nuclear deal to ensure that the Islamic Republic changes very little. The upcoming elections will not answer all these questions, but 26 February is the first test of which legacy will last longer: Obama's or Khamenei's.

Source: http://edition.cnn.com/2016/02/25/opinions/iran-elections-nuclear-deal-mcinnis/, 26 February 2016.

OPINION – Troy Stangarone

Going Nuclear Wouldn't Be Easy for South Korea

North Korea has conducted four nuclear tests, pushed boundaries with its missile tests, is pursuing second strike capabilities, and shows no indication of slowing down. South Korea in response has made a strategic bet that closing the Kaesong Industrial Complex can help to create leverage internationally to convince Pyongyang to abandon its nuclear ambitions, but some in Seoul and Washington are suggesting that South Korea should consider developing its own nuclear umbrella as leverage in talks with North Korea. However, this would be much more difficult than proponents generally acknowledge.

Since abandoning its own pursuit of nuclear weapons in the 1970s, South Korea has relied on United States nuclear umbrella for extended deterrence to prevent either a large scale invasion by the North or a nuclear attack. However, as North Korea continues to advance its nuclear and missile programs in spite of the international sanctions, it is understandable that experts and policy makers would look for new ways of deterring North Korea and incentivizing it to roll back its nuclear weapons and missile programs.

Arguments in favor of South Korea developing an independent nuclear deterrent tend to center around four arguments. First, that once North Korea has a range of deployable nuclear weapons with a second strike capability the military balance on the peninsula will have changed in a dangerous way. Second, that the international community has been ineffective in convincing North Korea to give up its nuclear weapons program, jeopardizing South Korea's national security. As a result South Korea needs to take responsibility for its own defense. Only with its own nuclear deterrent would Seoul have the ability to negotiate the elimination or reduction of Pyongyang's program. Third, that whether now or in the future the protection of the United States might become untenable. This is often expressed in the question of whether the United States would risk Los Angeles to save Seoul or concerns over future US defense cuts. And lastly, that the prospect of a nuclear armed South Korea, and potentially Japan, might focus minds in Beijing on resolving the problem of North Korea.

The South Korean public has also shown support for domestic nuclear weapon. Polls taken shortly

after the closing of the Kaesong Industrial Complex show domestic support ranging from 52.2 percent to 67.7 percent and polling done by the Asan Institute for Public Policy after North Korea's third nuclear test indicated that South Korean faith in US extended deterrence was waning.

However, South Koreans are rarely asked if they would be willing to bear the costs of a domestic nuclear weapon. Those cost would likely come in the form of diminished international standing, economic hardship, and uncertain strategic benefits.

For South Korea to develop its own nuclear weapons program it would have to join North Korea as the only country to withdraw from the NPT, an ignominious club for sure. Withdrawal would dent Seoul's growing international standing and make it the only member of MIKTA, an emerging club of middle powers, to have a nuclear weapon, something which would not enhance South Korea's middle power prestige.

From a strategic perspective the decision to go nuclear could focus minds in Beijing, but in ways that Seoul might not want. China has been vigorous in its objections to South Korean consideration of deploying the THAAD missile defense system. Beijing would likely object even more strenuously to a South Korean nuclear weapons program.

While a loss of international stature to ensure domestic security might be an acceptable trade off, there would likely be economic costs as well. Developing a nuclear weapon would have consequences for South Korea's own nuclear industry. Nuclear power provides a third of South Korea's electricity and represents 13 percent of its primary energy consumption. Lacking adequate domestic reserves of nuclear fuel, South Korea is dependent upon members of the NSG which conditions supply on the non-proliferation of nuclear weapons. Pursuing a nuclear option would put the fuel supply for South Korea's domestic reactors at risk.

South Korea also has designs on becoming a major exporter of nuclear power plants. In 2009, it won a $40 billion contract to construct and manage four nuclear power plants in the UAE and in 2013 a bid for a research reactor in Jordan. Those deals and any future potential exports would be put risk.

South Korea would also potential face economic sanctions. Iran and North Korea have both faced significant financial and economic sanctions for their pursuit of nuclear weapons, while India and Pakistan faced sanctions as well. Because South Korea is perhaps one of the world's most trade dependent nations it would be especially vulnerable to external economic pressure.

Given the clear and present danger that North Korea's nuclear program presents to South Korea, it is hard to know what the consequences might be if Seoul chose the nuclear option. Perhaps the international community would look upon South Korea's choice with a greater degree of understanding and acceptance than other nations, limiting any economic consequences. However, there are no assurances that will be the case.

From a strategic perspective the decision to go nuclear could focus minds in Beijing, but in ways that Seoul might not want. China has been vigorous in its objections to South Korean consideration of deploying the THAAD missile defense system. Beijing would likely object even more strenuously to a South Korean nuclear weapons program, especially if it opened the door to a Japanese nuclear weapon.

While talks with North Korea have not produced results to date, a South Korean nuclear weapon could end up merely serving as justification for the North's program and entrench a nuclear peninsula rather than help to spur talks. There is also no certainty that such a move would not damage relations with the United States, which was almost a consequence of South Korea's prior nuclear weapons program.

While North Korea's continued development of nuclear weapons and a range of delivery systems

should focus policy makers' attentions in the region, the potential downsides of a South Korean nuclear weapon would far outweigh the uncertain upside as long as the US nuclear umbrella remains credible. There is no reason to believe that umbrella is any less reliable today than it was during the Cold War when the United States and its allies faced a much more significant threat. As the United States spends $1 trillion dollars to modernize its own nuclear weapons there is every reason to believe that will not change in the foreseeable future. Perhaps that, along with the economic uncertainties that would arise from a South Korean nuclear weapons program, are why South Korea continues to reject the option of pursuing its own nuclear weapon.

Source: Troy Stangarone is the Senior Director for Congressional Affairs and Trade at the Korea Economic Institute of America. http://nationalinterest.org/feature/going-nuclear-wouldnt-be-easy-south-korea-15345, 29 February 2016.

NUCLEAR STRATEGY

INDIA

India's First Nuclear Submarine INS Arihant Ready for Operations, Passes Deep Sea Tests

India's first nuclear armed submarine is now ready for full fledged operations, having passed several deep sea diving drills as well as weapons launch tests over the past five months and a formal induction into the naval fleet is only a political call away. Multiple officials closely associated with the project to operationalize the INS Arihant nuclear missile submarine have confirmed to ET that the indigenously-built boat is now fully-operational and over the past few months, several weapon tests have taken place in secrecy that have proven the capabilities of the vessel.

The indigenously-built boat is now fully-operational and over the past few months, several weapon tests have taken place in secrecy that have proven the capabilities of the vessel The Arihant, which is the first of five nuclear missile submarines or SSBNs planned for induction, has also undergone deep sea dives off Vishakhapatnam where it was build.

The Arihant, which is the first of five nuclear missile submarines or SSBNs planned for induction, has also undergone deep sea dives off Vishakhapatnam where it was build. A Russian diving support ship – the RFS Epron that arrived on October 1 – has been accompanying the Arihant on its deep sea dives and launch tests, officials told ET. The Epron – a Prut class submarine rescue vessel – was also the Russian representation for the recently concluded International Fleet Review in Vishakhapatnam. India does not currently possess a submarine rescue vessel of this class – a vital requirement during weapon firing tests where all possibilities need to be catered for. The Arihant incidentally did not take part in the IFR even though it was ready due to security concerns. The presence of 24 foreign warships, equipped with sensors and equipment that could pick up vital electronic intelligence being the main deterrent.

The Navy has managed to keep under wraps several weapon launch tests from the Arihant over the past five months. The submarine is to be equipped with K 15 (or BO-5) short range missiles with a range of over 700 km and the K 4 ballistic missile with a range of 3,500 km. "It has passed all tests and in many things has surpassed our expectations.

Technically the submarine can now be commissioned at any time," a senior official said. Sources told ETthat the commissioning date could be as early as next month if the Modi government desires. A communication facility to interact with the submarine has already been commissioned into the Navy.

Technically the submarine can now be commissioned at any time," a senior official said. Sources told ETthat the commissioning date could be as early as next month if the Modi government desires. A communication facility to interact with the submarine has already been commissioned into the Navy.

At present, work is already in progress on two more Arihant class submarines at the Ship Building Center in Vishakhapatnam which will be larger and more advanced than the first boat. The navy is also accelerating work on INS Varsha – a new strategic naval base with underground pens on the Eastern Coast near Kakinada – where the nuclear assets would be based.

The Navy's Submarine Design Bureau is also presently working on a new class of SSNs that it hopes to induct within the next 15 years. The plan is to build at least six SSNs in India, with financial sanction given in 2015 for the project that could cost upwards of Rs 90,000 crore. At present, the only nuclear powered platform in service is the INS Chakra, a Akula class SSN on lease from Russia.

Source: http://mobile.nytimes.com/, 24 February 2016.

USA

US Officials, Touring Missile Defence Site, Voice Concern about North Korea

Senior US defence officials voiced concern about North Korea's nuclear ambitions on 26 February as they toured American missile defence sites a day after watching the military test-fire its second intercontinental ballistic missile in a week. Deputy Defence Secretary Robert Work and Admiral Cecil Haney, combat commander of US nuclear forces, said they were confident American missile defences could counter the nuclear threat from Pyongyang despite a mixed record of success in testing.

"I think when you look at what it's designed for, and that's a North Korean type problem, I think (I have) a very high confidence that we would have the capability," Haney said after visiting a nondescript metal building where workers assemble the ground-based interceptor at the heart of the defence system.

Their remarks were a second day of messaging North Korea about its nuclear ambitions. Work said the test-firing of the unarmed Minuteman III missile on 25 February night was aimed at demonstrating the reliability of US nuclear arms to potential nuclear rivals like Russia and North Korea.

The US currently has 30 ground-based interceptor missiles to target and destroy nuclear ballistic missiles while they are still in space. Four of the interceptors are at Vandenberg and the rest at Fort Greely, Alaska. The US military is building another 14 interceptors at a cost of nearly US$1 billion to be installed at Fort Greely by the end of 2017.

The tour of missile defence facilities was another signal to Pyongyang, which recently detonated an underground nuclear device and tested a rocket in defiance of UN Security Council resolutions. "North Korea as a whole (is) very, very problematic in terms of their thirst to have a nuclear capability," Haney told reporters, citing Pyongyang's indifference to Security Council resolutions and its provocative attacks on South Korea.

The US currently has 30 ground-based interceptor missiles to target and destroy nuclear ballistic missiles while they are still in space. Four of the interceptors are at Vandenberg and the rest at Fort Greely, Alaska. The US military is building another 14 interceptors at a cost of nearly US$1 billion to be installed at Fort Greely by the end of 2017, fulfilling a pledge by former Defense Secretary Chuck Hagel in 2013 after Pyongyang threatened a pre-emptive nuclear strike on the US. The deputy secretary said on 26 February the ICBM test-shot late on 25 February was viewed as a success because of its proximity to the target near Kwajalein Atoll in the South Pacific. The military does not generally disclose how close the missile lands to its target. Work said it was the eighth consecutive successful test of a Minuteman III and the 27th consecutive successful missile test in the nuclear force, including air-launched cruise missiles and submarine-launched missiles.

Source: http://www.channelnewsasia.com/news/world/us-officials-touring-mis/2554016.html, 27 February 2016.

BALLISTIC MISSILE DEFENCE

ISRAEL

Israel to have Final Tier of Multilayered Ballistic Missile Defence in Place by 2017

Israel's Arrow 3 ballistic missile defence system is "very close" to being operational, a senior IAF officer said on 25 February. The successful Arrow 3 interception test carried out in December 2015 has brought forward the system's initial operating capability date, which is now expected before the end of 2016, the source said. The operationalisation of Arrow 3, which is designed to intercept ballistic missiles when they are still outside the Earth's atmosphere, will complete Israel's multilayered missile defences. Arrow-2 is already in service and David's Sling, which is designed to intercept shorter-range ballistic missiles and heavy rockets, is in the process of being integrated into the network.

The operationalisation of Arrow 3, which is designed to intercept ballistic missiles when they are still outside the Earth's atmosphere, will complete Israel's multilayered missile defences.

Source: http://www.janes.com/article/58369/israel-to-have-final-tier-of-multilayered-ballistic-missile-defence-in-place-by-2017, February 2016.

SOUTH KOREA

South Korea Tells China not to Intervene in Missile-Defence System Talks

Tensions between South Korea and China over how to deal with the North have flared into an unusually blunt diplomatic dispute, with Seoul telling Beijing on 24 February not to meddle in its talks with the US over the possible deployment of an American missile-defense system here. Jung Youn-kuk, a spokesman for President Park Geun-hye of South Korea, said Seoul's decision to discuss the system, known as Thaad, which stands for Terminal High Altitude Area Defense, was based on its own need for "self-defense against North Korea's growing nuclear and missile threats." "This is a matter we will decide upon according to our own security and national interests," Mr. Jung said 24 February. "The Chinese had better recognize this point."

A senior official, speaking to reporters at the South Korean Foreign Ministry on the condition of anonymity, went further, advising China to "look into the root of the problem if it really wants to raise an issue with it" – a reference to the North's pursuit of nuclear and ballistic missile technology and what South Koreans and Americans consider China's failure to dissuade Pyongyang from that path. The angry retorts came a day after the Chinese ambassador to South Korea, Qiu Guohong, warned that the two countries' relationship could be "destroyed in an instant" if Seoul allowed the THAAD system to be deployed on its soil.

Source: http://mobile.nytimes.com/, 24 February 2016.

NUCLEAR ENERGY

CHINA

China could have a Meltdown-Proof Nuclear Reactor Next Year

In what would be a milestone for advanced nuclear power, CNECC plans to start up a high-temperature, gas-cooled pebble-bed nuclear plant in 2017 in Shandong province, south of Beijing. The twin 105-megawatt reactors—so-called Generation IV reactors that would be immune to meltdown—would be the first of their type built at commercial scale in the world. Construction of the plant is nearly complete, and the next 18 months will be spent installing the reactor components, running tests, and loading the fuel before the reactors go critical in November 2017, said Zhang Zuoyi, director of the Institute of Nuclear and New Energy Technology, a division of Tsinghua University that has developed the technology over the last decade and a half, in an interview at the institute's campus 30 miles south of Beijing. If it's successful, Shandong plant would generate a total of 210 megawatts and will be followed by a 600-megawatt facility in Jiangxi province. Beyond that, China plans to sell these reactors internationally; in January, Chinese president Xi Jinping signed an agreement with King Salman bin Abdulaziz to construct a high-

China plans to sell these reactors internationally; in January, Chinese president Xi Jinping signed an agreement with King Salman bin Abdulaziz to construct a high-temperature gas-cooled reactor in Saudi Arabia.

temperature gas-cooled reactor in Saudi Arabia.

"This technology is going to be on the world market within the next five years," Zhang predicts. "We are developing these reactors to belong to the world." Pebble-bed reactors that use helium gas as the heat transfer medium and run at very high temperatures – up to 950 °C – have been in development for decades. The Chinese reactor is based on a design originally developed in Germany, and the German company SGL Group is supplying the billiard-ball-size graphite spheres that encase thousands of tiny "pebbles" of uranium fuel. Seven high-temperature gas-cooled reactors have been built, but only two units remain in operation, both relatively small: an experimental 10-mw pebble-bed reactor at the Tsinghua Institute campus, which reached full power in 2003, and a similar reactor in Japan.

During a recent visit to the Tsinghua facility, technologists were testing the huge helium blower that will circulate the gas coolant at the Shandong site once it starts up. Such high-temperature reactors are immune to meltdown because they don't require elaborate external cooling systems of the sort that failed at Fukushima, Japan, in 2011. The graphite coating protects the fuel from breaking down, even at temperatures well beyond those found in the reactor core during operation, and once the interior temperature passes a certain threshold, the nuclear reactions slow, cooling the reactor and making it essentially self-regulating. And while pebble-bed reactors do not totally solve the problem of nuclear waste, the fuel's form also gives rise to multiple options for waste disposal. China's eventual goal is to eliminate or greatly reduce waste by recycling the spent fuel.

One of the main hurdles to building these reactors is the cost of the fuel and of the reactor components. But China's sheer size could help overcome that barrier. "There have been studies that indicate that if reactors are mass-produced, they can drive down costs," says Charles Forsberg, executive director of the MIT Nuclear Fuel Cycle Project. "The Chinese market is large enough to make that potentially possible."

Several other advanced-reactor projects are under way in China, including work on a molten-salt reactor fueled by thorium rather than uranium (a collaboration with ORNL, where the technology originated in the 1960s), a traveling-wave reactor (in collaboration with TerraPower, the startup funded by Bill Gates), and a sodium-cooled fast reactor being built by the Chinese Institute for Atomic Energy.

Indeed, China is rapidly becoming a test bed for innovative nuclear power technologies that have stalled in the US and Europe. "What you are seeing is serious intent," says Forsberg. "They may kick greenhouse gases out of their power sector before we do because of that serious intent."

Source: https://www.technologyreview.com/s/600757/china-could-have-a-meltdown-proof-nuclear-reactor-next-year/, 11 February 2016.

FRANCE

France Prepared to Extend Life of Nuclear Reactors: Energy Minister

The French government is willing to support a 10-year extension to the life of the country's nuclear reactors, operated by utility EDF, Energy Minister Segolene Royal told France 3 television on 28 Feb.

Nuclear power provides about 75 percent of France's electricity, but the industry has come under the spotlight since the 2011 Fukushima disaster in Japan and France has pledged to reduce its reliance on nuclear to 50 percent by increasing renewable energy. Asked if she was ready to raise the limit on existing reactors to 50 years from 40 years, Royal said: "Yes, I am ready to give this the green light, depending obviously on the opinion of the Nuclear Safety Authority (ASN) .... the French people have for years invested a lot in the nuclear reactors." The ASN watchdog has the power to halt nuclear installations at any time if it sees a risk and is the only authority which can allow an extension to the life of the reactors beyond 40 years.

Source: http://www.reuters.com/article/us-france-nuclear-idUSKCN0W10LD, 28 February 2016.

JAPAN

Japan to Restart Fourth Nuclear Reactor

Japan will on Feb 26 restart its fourth nuclear reactor – unit 4 of the Takahama Nuclear Plant in Fukui Prefecture – after it was shut for leaking

contaminated water. It would be KEPCO second restart since the company was placed under strict inspection guidelines in July 2011. Japan's nuclear watchdog had imposed stringent regulations following the March 2011 Fukushima nuclear meltdown after a magnitude-9 earthquake which triggered massive tsunamis and caused massive destruction in the region. Just a week earlier, trouble surfaced when KEPCO said it found contaminated water leaking from unit 4 of the Takahama plant. The company said the problem has been solved.

Japan's nuclear watchdog had imposed stringent regulations following the March 2011 Fukushima nuclear meltdown after a magnitude-9 earthquake which triggered massive tsunamis and caused massive destruction in the region.

On 24 February the nuclear watchdog gave the green light to two more units at Takahama. Some experts have said the reactors should have been closed, as they are already 40 years old. The government is looking to have nuclear power comprise about 20 per cent of the country's energy mix.

Source:http://www.channelnewsasia.com/news/asiapacific/japan-to-restart-fourth/2551054.html, 26 February 2016.

USA

A Proposal to Change Advanced Reactor Licensing

Former US NRC Commissioner Jeffrey S. Merrifield called for a comprehensive new framework for Advanced Reactor licensing reform in an issue brief outlined at the National Press Club on 2/23/16. Merrifield, who served two terms with the Nuclear Regulatory Commission, chairs the Advanced Reactors Task Force of the US Nuclear Infrastructure Council, a nuclear industry business consortium. The Council is the founder and organizer of the Advanced Reactors Technical Summit, most recently held at the Oak Ridge National Laboratory earlier this February. Merrifield is a Partner with Pillsbury Winthrop Shaw Pittman law firm.

Merrifield noted that a confluence of environmental, energy security and competitiveness considerations are accelerating the compelling need for the expedited development of Advanced Nuclear Reactors in the US and worldwide.

Merrifield noted that a confluence of environmental, energy security and competitiveness considerations are accelerating the compelling need for the expedited development of Advanced Nuclear Reactors in the US and worldwide. "Deployment of this new generation of reactors," he said, "will require a new model, one that is more dynamic and capable of forming private-public partnerships in support of private-sector innovation driven initially by private-sector investment. "The current framework of US government policy, legislation, regulation and requirements, research and development support, and fee-based licensing is more aligned with past development efforts than what is needed for the future to commercialize a new generation of Advanced Reactors," Merrifield said.

"This is particularly true of the US NRC licensing process, which presents one of the largest risk factors confronting private developers of Advanced Reactors as it does not accommodate a staged investment approach as the technology development and licensing risks are addressed and resolved. "Congress should consider significant policy changes. It should provide additional resources to both agencies as well as direct them to focus and mobilize their resources and expertise on the goal of expanding nuclear energy options with Advanced Reactors.

Both the DOE and NRC must be proactive in developing their capabilities and engaging with the Advanced Reactor community. The unique features being trail blazed by Advanced Reactors justify an updated and modernized NRC design review and licensing process," added the former Commissioner. Among the 11 specific reforms

proposed in the licensing modernization framework are:

• A mandate for a 36-month Advanced Reactor licensing review by the NRC;

• General revenue funding to allow the NRC to waive the fees for the review of Advanced Reactors through their final design approval and for regulatory infrastructure and staffing to review and approve Advanced Reactor technology designs;

• Establishment of a phased design review and licensing process that would provide intermediate milestones towards a design certification that would include an early determination of licensability to enable continued development of designs without requiring a complete design to be submitted upfront;

• Development of a risk informed licensing process for Advanced Reactors that recognizes their reduced source term risk and avoids the unnecessary implementation of regulatory requirements that are more appropriate for large light water reactor technologies;

• Resolution of generic policy issues pertinent to Advanced Reactors within two years.

The issue brief's conclusion:

"It is time to make dramatic changes in the way we pursue, support and license Advanced Reactor technologies to achieve the full measure of their promise and the success the nation needs for the future. While this will require a sustained focus and investment of resources by government, the return on investment will be pivotal in ensuring the US maintains its technological leadership in nuclear energy's vital and carbon-free source of clean energy while providing jobs, economic competitiveness and energy security while improving our nation's environment and health."

Source:http://www.theenergycollective.com/dan-yurman/2322956/proposal-change-advanced-reactor-licensing, 26 February 2016.

URANIUM PRODUCTION

USA

US Uranium Production Hits Lowest in 10 Years

Production of uranium in the US dropped in 2015 to the lowest level in ten years, figures released by the EIA show. In the fourth quarter of the year alone, uranium concentrate output hit 85,048 pounds U3O8 (225 tU), its lowest level since 2002, and 46% less than what the country produced in the same quarter of 2014. All of the fourth quarter's production came from four in-situ leach operations, including Wyoming-based Lost Creek (Ur-Energy), Nichols Ranch (Energy Fuels) and Smith Ranch-Highland (Cameco), as well as Crow Butte (Cameco), in Nebraska.

The energy watchdog attributes the output drop to depressed prices for spot uranium, used to make fuel for nuclear power production. The commodity has traded at historical lows since the 2011 Fukushima disaster in Japan, which led to the shutdown of all reactors in that country, generating burdensome stockpiles globally.

The energy watchdog attributes the output drop to depressed prices for spot uranium, used to make fuel for nuclear power production. The commodity has traded at historical lows since the 2011 Fukushima disaster in Japan, which led to the shutdown of all reactors in that country, generating burdensome stockpiles globally. Prices have remained stuck around $35 a pound, or about 40% lower than in March, 2011, right after Fukushima. But experts believe that recovery is just a matter of time, based on supply and demand outlooks.

Canadian uranium producer Cameco, the world's second-largest uranium producer, said earlier in February that China is building 24 reactors to produce power from nuclear fuel. The company forecast an increase in the total number of nuclear reactors operating globally – from 439 in 2015 to 450 in 2016 and to 497 reactors by 2025. As demand grows, there are few new sources of supply to keep pace, as depressed

prices continue to discourage exploration and new mines. The EIA's annual report of domestic uranium production is due to be published in May.

Source: http://www.mining.com/us-uranium-production-hits-lowest-in-10-years/, 23 February 2016.

Peninsula Energy has High Grade Uranium Hits in South Africa

Peninsula Energy has recorded high-grade, near-surface uranium intercepts from a re-logging of existing drill holes completed during December 2015 to February 2016 at the Rietkuil project area at Peninsula's Karoo Projects in South Africa. Re-logging is occurring in areas that are outside the existing JORC resource of 56.9 million pounds of uranium defined in 2014. Hence the re-logging and results obtained will be included in an update of the Karoo resource.

Peninsula's announcement comes just days after South African President Jacob Zuma committed to a target of 9.6GWe by 2030, with the first new reactor coming online in 2030. South Africa's physical and psychological shift towards nuclear energy consumption should provide tailwinds for uranium mining in the country, creating an opportunity for the high-grade Rietkuil projects.

While Peninsula's uranium producing Lance Project in Wyoming is rightfully the focus of attention, with a NYSE MKT listing in train, Karoo could provide Peninsula with production from South Africa over time. As well, it would assist to ease the burden of the chronic power shortages in South Africa. Best intercepts from the re-logging included: 9.5 feet at 2,408 parts per million uranium oxide equivalent from 37.9 feet; 8.9 feet at 2,422 parts per million uranium oxide equivalent from 27.6 feet and 6.6 feet at 2,800 parts per million uranium oxide equivalent from 47.4 feet.

***RSA on Nuclear Road*:** This upbeat news flow could not come at a more opportune time, as South Africa gears up for nuclear expansion to add to the two nuclear reactors which provide about 5% of the country's electricity supply. In 2014, South Africa agreed to a US$10 billion nuclear contract with Russia's state nuclear energy firm Rosatom as a first step towards achieving South Africa's nuclear goals. Peninsula's announcement comes just days after South African President Jacob Zuma committed to a target of 9.6GWe by 2030, with the first new reactor coming online in 2030. South Africa's physical and psychological shift towards nuclear energy consumption should provide tailwinds for uranium mining in the country, creating an opportunity for the high-grade Rietkuil projects. The Rietkuil project contains a resource of 23.3 million tonnes of ore containing 56.9 million pounds of uranium at a grade of 1,108 parts per million uranium oxide. But given the expansive land package at Rietkuil, Peninsula has outlined an exploratory resource growth target of 250-350 million pounds of uranium.

While operations at Lance continue to be the focus for Peninsula, Karoo provides a very handy high grade project that is primed and likely timed to be developed as nuclear expansion momentum builds in South Africa. A pre-feasibility study is underway.

The re-logging of earlier drill holes should result in a significant increase in the Karoo resource base. Activities supporting the application for the grant of a mining license for Karoo are continuing. Peninsula's flagship Lance in-situ recovery project in the US continues to perform to expectation. The low cost ISR processing technique, as well as long term contracts struck by Peninsula when uranium prices were far higher provides the platform for Lance to be a highly profitable operation.

Source: http://www.proactiveinvestors.com.au/companies/news/67211/peninsula-energy-has-high-grade-uranium-hits-in-south-africa-67211.htm, 26 February 2016.

NUCLEAR COOPERATION

TURKEY–CHINA

Turkey-China Talks on Building Third Nuclear Power Plant Inconclusive

Briefing lawmakers at the parliamentary Foreign Affairs Commission where an intergovernmental agreement on cooperation in nuclear energy between Turkey and China was debated, Energy

Ministry Deputy Undersecretary Sefa Sadýk Aytekin said the government had talks with a Chinese company about potentially building a nuclear power plant in Turkey. "This was a preliminary meeting. No agreement could be reached for the moment," he said, praising China's experience in nuclear energy. He said China has 27 active nuclear power plants and is building an additional 24 units.

Turkey previously had talks with China when the second power plant in the Black Sea province of Sinop was being considered, but China was eliminated when the government finally decided to go with a French-Japanese consortium. The Japanese Mitsubishi Heavy Industries Ltd. and France's Areva SA won an order to build Turkey's second nuclear power plant, a project expected to cost around $22 billion.

"There [has been] no significant nuclear accident in China so far," he said, stressing that Beijing is meeting 2.5 % of its electricity demands from nuclear power and aiming to increase the share to 6 percent by 2020. Turkey previously had talks with China when the second power plant in the Black Sea province of Sinop was being considered, but China was eliminated when the government finally decided to go with a French-Japanese consortium. The Japanese Mitsubishi Heavy Industries Ltd. and France's Areva SA won an order to build Turkey's second nuclear power plant, a project expected to cost around $22 billion.

Ahmet Akýn, a deputy from the main opposition Republican People's Party (CHP), questioned China's credibility in building nuclear power plants, saying that many countries aspiring to acquire nuclear energy remain distant to China's overtures. Akýn, who is also chief energy consultant to CHP leader Kemal Kýlýçdaroðlu, asked why there was a secret clause in the agreement on the cooperation for peaceful usage of nuclear energy between the two countries that was signed with China in Beijing on April 9, 2002.

According to Article 6 of the agreement, both countries pledge to not share any confidential information with third parties. Aytekin said the confidentiality clause in the agreement entails issues such as sensitive trade data or nuclear information that neither side wants to share with third parties. He also blamed the delay on the approval of the agreement with China on Turkish bureaucracy. Murat Salim Esenli, the deputy undersecretary of the Foreign Ministry, told the commission that China has already finalized the approval process for the agreement. He said Turkey's Foreign Affairs Commission voted for the approval of the agreement before, on Aug. 1, 2012, but the deal was never approved by Parliament's General Assembly.

The agreement was again submitted to Parliament by the government on Dec. 2, 2015, and the Foreign Affairs Commission approved it on Feb. 18, 2016. It is not clear when Parliament will put the agreement to the vote on the floor.

Turkey reached a deal with Russia in 2010 to build the first nuclear power plant in Mersin's Akkuyu district for $20 billion. But the recent tension with Russia after the downing of a Russian SU-24 on the Syrian border on Nov. 24 raised questions over whether Russia would move forward with the plant's construction. Aytekin said the project in Mersin is very close to the construction phase. He added that Russia's state-owned Rosatom and other Russian companies involved in the project have been working fast on licensing issues with the EPDK and the TAEK.... On the impact of recent tension with Russia on the project, the government official declined to comment, saying it was a political matter rather than a technical one. "That remains to be seen," Aytekin remarked. On the second plant in Sinop, Aytekin said the agreement was approved by

Turkey reached a deal with Russia in 2010 to build the first nuclear power plant in Mersin's Akkuyu district for $20 billion. But the recent tension with Russia after the downing of a Russian SU-24 on the Syrian border on Nov. 24 raised questions over whether Russia would move forward with the plant's construction.

Parliament 2015 and that a two-year feasibility study is currently being conducted by a consortium comprising Mitsubishi, Hitachi, French EDF Group and the Turkish EÜA[a].

"If the feasibility studies turn out to be positive, the construction phase will begin," Aytekin underlined. He also revealed that the government offered the purchase guarantee of 12.35 cents per kwh for Mersin Akkuyu for half of the electricity produced by the power plant during the lifetime of the project. The purchase guarantee for the Sinop plant is 11.80 cents, but covers all the electricity produced by the plant.

Source:http://www.todayszaman.com/business_turkey-china-talks-on-building-third-nuclear-power-plant-inconclusive_413172.html, 24 February 2016.

NUCLEAR PROLIFERATION

SOUTH KOREA

After Tests in the North, Conservatives in South Korea Call for a Nuclear Program

In the wake of North Korea's nuclear tests and satellite launches, some conservatives in South Korea are championing a strategy that was once seen as unthinkable: arming their own country with nuclear weapons. Several members of President Park Geun-hye's party have called for developing a nuclear program, a view that for now is contained to a small band of conservative politicians and pundits – most notably columnists affiliated with the country's largest conservative newspaper, Chosun Ilbo.

Several members of President Park Geun-hye's party have called for developing a nuclear program, a view that for now is contained to a small band of conservative politicians and pundits – most notably columnists affiliated with the country's largest conservative newspaper, Chosun Ilbo.

Still, the notion of nuclear sovereignty holds sizable emotional sway over South Koreans, many of whom have never fully trusted Washington's commitment to their defense or China's promise to help halt North Korea's nuclear program. In a survey conducted by the Asan Institute for Policy Studies in Seoul shortly after the North's third nuclear test in 2013, 66.5 percent of respondents supported a home grown nuclear program. That percentage has declined but still hovers between 52.5 percent and 54 percent in polls conducted after the North's latest nuclear test on Jan. 6.

... Some advocates of a South Korean nuclear program acknowledge they want to put pressure on China, as frustration grows with Beijing's inability – or unwillingness – to rein in its North Korean ally. ... But when Seoul asked Beijing to strengthen sanctions on the North, it was told to restrain itself. China also demanded that South Korea stop negotiating the deployment of an advanced American missile-defense system, saying it threatened its security. ... South Korean officials and analysts alike have long said that the country had too much to lose if it decided to go nuclear. Its exports-dependent economy would founder under international sanctions if it left the NPT. And it could trigger an arms race in the region.

Such warnings aside, the fear of being abandoned by the Americans has deep roots here. From an early age, South Koreans are taught that Korea was betrayed by the former Soviet Union and the US after World War II, leading to a divided Korean Peninsula. In the 1970s, when South Korea feared the US might withdraw troops from Asia after its pullout from Vietnam, its then-dictator, Park Chung-hee, Ms. Park's father, set out to build nuclear arms. He recruited expatriate Korean scientists from the US and signed a contract with France to build a nuclear reprocessing plant to make bomb fuel.

Washington learned of the program and forced Mr. Park to give it up, warning that his nuclear ambitions jeopardized the alliance and American aid. Although Mr. Park reportedly vowed to build a nuclear weapon by 1981, it remained unclear how far South Korea had gotten before it abandoned that goal. Mr. Park, remembered for his mantra of "self-reliant defense," remains a

revered figure among the South Korean conservative establishment. Although the country has since repeatedly disavowed a desire to join the nuclear club, its scientists had transgressed IAEA safeguards by experimenting with reprocessing in 1982 and with enrichment in 2000.

Mr. Cheong, the Sejong Institute analyst, said at this point South Korea could build a nuclear weapon within 18 months. After the North's satellite launch in February, Won Yoo-chul, the floor leader of Ms. Park's Saenuri Party, called for nuclear arms "for self-defense." Its chief policy coordinator, Kim Jung-hoon, urged the government to negotiate with Washington for the right to reprocess the spent fuel from the country's nuclear power plants to glean plutonium for weapons.

Mr. Cheong, the Sejong Institute analyst, said at this point South Korea could build a nuclear weapon within 18 months. After the North's satellite launch in February, Won Yoo-chul, the floor leader of Ms. Park's Saenuri Party, called for nuclear arms "for self-defense.

Some nationalists have argued, unsuccessfully, that if the US will not permit South Korea to have nuclear weapons, it should at least allow it to acquire a plutonium stockpile and sensitive nuclear technology to maintain a recessed weapons capability. During the Cold War, the US kept hundreds of tactical nuclear weapons in South Korea. But it withdrew them in 1991 as part of a global nuclear arms reduction. Around that time, the two Koreas also signed an agreement to keep the peninsula free of nuclear weapons.

Now that the North has abandoned that deal, some South Koreans say Washington should at least ensure a nuclear balance on the peninsula by reintroducing tactical atomic weapons. End of February, some conservative civic groups began a signature-collecting campaign to urge the government to start negotiations with Washington. Mr. Pollack said the US regarded such weapons as essentially irrelevant to contemporary security requirements. And Han Min-koo, the South Korean defense minister, told Parliament that the combined allied deterrent, including the "nuclear umbrella" the Americans provided, was enough to protect the country.

Washington has dispatched B-52 bombers, a nuclear submarine and F-22Raptor stealth jets to South Korea, a display of allied "extended deterrence" designed in part to dispel the call for nuclear weapons. "It is unnecessary because the US is absolutely committed to South Korea's security and to its defense," Antony J. Blinken, deputy secretary of state, said in a recent interview. "I think the international community would not look favorably on it." Yet many here doubt Washington's allegiance. The recent contention by Donald J. Trump, the Republic presidential candidate, that South Korea was not paying enough to help maintain 28,500 American troops here has only fueled those misgivings.

"We must ask ourselves whether the US will save Seoul at the risk of sacrificing L.A. or San Francisco," Chung Mong-joon, a former head of the governing party, wrote in a widely circulated blog post, warning of the North's potential for striking the US with a nuclear-tipped intercontinental ballistic missile. An editorial in the Chosun Ilbo in February advised South Korea to study the path Israel took to becoming a de facto nuclear power. "We can no longer depend on the uncertain American nuclear umbrella," it said.

Source: http://www.nytimes.com/2016/02/20/world/asia/south-korea-nuclear-program-north.html?mwrsm=Facebook&_r=0, 19 February 2016.

NORTH KOREA

Intelligence Chief James Clapper: North Korea Ready to Start Plutonium Production

The US director of national intelligence said it's only a matter of weeks or months until North Korea recovers plutonium from its nuclear facilities. Speaking before the House Permanent Select Committee on Intelligence, James Clapper said in addition to plans to extract plutonium, North Korea exports ballistic missiles and related materials to countries like Iran and Syria. But the

North's claims of a "successful" hydrogen bomb test don't quite measure up to certain requirements. The low yield of the test is not consistent with a successful test of a thermonuclear device, Clapper.

Other government agencies, including South Korea's National Intelligence Service, have previously stated that it's unlikely the North's test involved a hydrogen bomb, South Korean newspaper Munhwa Ilbo reported. Some US and South Korean experts have said that the test most likely involved an enhanced nuclear fission device. Despite what many regard as Pyongyang's exaggerated claims, Clapper said North Korea's nuclear capabilities should not be underestimated. North Korea has increased the size and sophistication of its arsenal of ballistic missiles that range from close-range rockets to intercontinental ballistic missiles.

Other government agencies, including South Korea's National Intelligence Service, have previously stated that it's unlikely the North's test involved a hydrogen bomb, South Korean newspaper Munhwa Ilbo reported. Some US and South Korean experts have said that the test most likely involved an enhanced nuclear fission device.

At Yongbyon, North Korea's uranium enrichment facility, North Korea plans to restart a plutonium production reactor that was closed in 2007, Clapper said. The reactor is already in operation, and plutonium could be recovered in a matter of weeks, he said. The Japanese government issued a similar report in February and has said Pyongyang could also be capable of miniaturizing nuclear warheads.

Source: http://www.upi.com/Top_News/World-News/2016/02/26/Intelligence-chief-James-Clapper-North-Korea-ready-to-start-plutonium-production/2811456498147/, 26 February 2016

NUCLEAR NON-PROLIFERATION

IRAN

Iran Abiding by Nuclear Deal, UN Agency Says

Iran has carried out most of its commitments under the nuclear agreement reached in July, the United Nations' atomic agency said, although for a time it exceeded the permitted amount of heavy water, which can be used to produce plutonium. In its first report on Iran's compliance deal since the agreement went into effect in mid-January, the IAEA said Iran's stock of heavy water had reached 130.9 tons, above the 130 tons limited permitted by the deal, the diplomats said.

However, the stockpile fell when Iran shipped 20 tons of heavy water out of the country. The IAEA verified the amount that was shipped, the report said. One diplomat said the IAEA allows for a margin of error of 1 percentage point in such measurements, which means that Iran wasn't technically over the limit. The report also noted that Iran had continued producing rotor tubes and bellows, key components of centrifuge machines used to spin uranium to higher purities. Highly enriched uranium and plutonium can both be used as fuel for a nuclear weapon.

The report said Iran declared on 22 February that it had stopped manufacturing rotor tubes, and the IAEA is to verify on its next visit. The nuclear deal saw Iran agree to scale back its nuclear activities and infrastructure in exchange for the lifting of tight, related sanctions imposed by the US, the EU and the UN. The deal was only implemented after Iran took a series of agreed-upon steps, including reducing the stockpile of enriched uranium to below 300 kilograms, limiting its amount of heavy water, taking more than 10,000 centrifuges out of its nuclear facilities and removing the core of its Arak heavy water plutonium reactor. Iran has denied accusations that it had been working on developing a nuclear weapons program before the agreement was reached. It has always insisted its nuclear activities were for purely peaceful purposes.

Source: http://www.wsj.com/articles/iran-abiding-by-nuclear-deal-un-agency-says-1456515699, 26 February 2016.

Iran's 'Baby' US-Made Nuclear Reactor Goes On

In the middle of busy Tehran, nuclear reactions continue apace. But this radiation is perfectly legal – far removed, the government hopes, from an era of secretive nuclear development that isolated Iran from most of the world. In an era of openness in Iran – at least relative to years past – the government is showing off its Tehran

Research Reactor for the world to see. Foreign and Iranian journalists were escorted to the reactor on 24 February morning. Phones and cameras were not allowed inside.

Men in camouflage uniforms with pistols at their waists stood around the complex and accompanied the journalists on their tour, but the mood was relaxed. Other than a somewhat unnerving moment in a decades-old airlock chamber leading to the reactor, it was more high school science tour than sensitive government installation. Outfitted in white lab coats and blue protective foot coverings, we were paraded around the reactor, which was supplied by an American company in the 1960s.

The building seems hardly changed from the day it was completed. Its signs are in English and a heavy-duty crane is stamped "Wien," made in the Austrian capital, Vienna. Overhead, the ubiquitous portraits of two supreme leaders hang – the founding father, Ayatollah Ruhollah Khomeini, and the current leader, Seyyed Ali Khamenei. A vaguely chemical smell lingers in the air. At the building's center, a small cooling pond is lined, deceptively, with white tiles that wouldn't be out of place at a swimming pool. Below 7.2 meters (24 feet) of bright blue water lie rectangular aluminum rods filled with uranium-235, enriched to 20%, far below the threshold for nuclear weapons.

"All Iranian-made," says a young tour guide who goes only by Saeed. Every week, he says, a group of students comes through; every month, inspectors from the IAEA inspect the operation. A hard-won agreement with world powers, implemented in January, significantly limits Iran's nuclear activities. But this reactor, used for research and to make radioactive pharmaceuticals, uses only low-enriched uranium and so falls outside the scope of the agreement.

It's just a "baby" reactor, Saeed says. At 5 MW, it produces no electricity, only radiation to make irradiated isotopes for use in medicine. (By comparison, he says, the reactor at Bushehr – now turned off – was 1,000 MW.) The reactor, owned by the government, works hand in hand with the privately owned Pars Isotope Company. Through a series of vacuum tubes reminiscent of a bygone era, scientists send the isotopes, exposed to the uranium's radiation, to lab technicians who ready them for hospitals not only in Iran, but in India, Pakistan and Lebanon.

At 5 MW, it produces no electricity, only radiation to make irradiated isotopes for use in medicine. (By comparison, he says, the reactor at Bushehr – now turned off – was 1,000 MW.)

Source: http://www.wptz.com/national/tehrans-baby-nuclear-reactor-plugs-on/38161238, 24 February 2016.

NUCLEAR DISARMAMENT

GENERAL

Disarmament Talks Face New Threats, Says Kofi Annan

The stalemate on nuclear weapons disarmament needs to be resolved amid increasing concern about the "prodigious" number of warheads still in circulation, former UN Secretary General Kofi Annan said 22 February in Geneva. Addressing a Working Group at the UN in Geneva which is looking at how to take forward multilateral nuclear disarmament negotiations, Mr Annan said that non-nuclear states now "rightfully question" whether the international community has the legal tools it needs to achieve this.

Worse still is the fact that nuclear arms states are busy modernising their nuclear arsenals and developing new types of weapons. All this overshadows the "limited progress" made on nuclear disarmament and nuclear non-proliferation in recent years, Mr Annan said.

Speaking at the UN in Geneva, at a meeting that's tasked with kick-starting nuclear disarmament negotiations, former UN Secretary General Kofi Annan said that the current status quo is not good. That's because it's been decades since nuclear weapons states entered into a legally binding contract to negotiate with non-nuclear states on disarmament, he said, the suggestion being that this accord urgently needs updating.

Worse still is the fact that nuclear arms states are busy modernising their nuclear arsenals and developing new types of weapons. All this

overshadows the "limited progress" made on nuclear disarmament and nuclear non-proliferation in recent years, Mr Annan said.

"Many non-nuclear weapons states rightfully question whether or not existing legal architecture sufficient to achieve and maintain a nuclear weapon-free world or even to prevent further proliferation of nuclear weapons."

Some states had given up their nuclear weapons or their intention to procure them, but the global nuclear arsenal remained prodigious, Annan said. The former UN Secretary General warned about increasing global instability, the rise of military budgets and the emergence and deployment of new technologies that can disrupt weapons systems meant to protect so-called global strategic stability.

Source: http://m.gbcghana.com/1.8708270, 23 February 2016.

USA

Y-12 Finishes W69 Warhead Dismantlement Work

Dismantlement of W69 canned subassemblies has been completed at the Y-12 National Security Complex, officials said. The W69 was the warhead for the short-range attack missile, or SRAM, and it was retired from the US nuclear stockpile in 1992. The last W69 weapon was dismantled in 1999. The Y-12 site originally assembled the W69 canned subassemblies, or CSAs, in the 1970s and began disassembly in 2012.

"These weapons components have come full circle, considering Y-12 has been responsible for the assembly and disassembly of every secondary in the nation's nuclear stockpile," manager of the National Nuclear Security Administration's Production Office Geoff Beausoleil said, "With this successful dismantlement, we now can turn our focus to other systems to further modernize the stockpile." "The employees of Consolidated Nuclear Security are proud to have an integral role in accomplishing the NNSA's nuclear weapon mission," Consolidated Nuclear Security President and CEO Morgan Smith said. "The work done at Y-12 on the W69 is yet another example of the important role we play in supporting our nation and making the world a safer place."

Consolidated Nuclear Security manages and operates Y-12 and the Pantex Plant in Amarillo, Texas, under a consolidated contract for the NNSA, a semi-autonomous agency within the US Department of Energy. Taking apart nuclear weapons is a complex process that involves almost all of the sites within the nuclear security enterprise, a press release said. Prior to starting the dismantlement process, NNSA's design laboratories identify and mitigate hazards that may arise for a particular weapon type or component based on unique knowledge gained during the original design process.

Once retired weapons are returned to the Pantex Plant, high explosives are removed from the plutonium pit constituting a weapon dismantlement. Plutonium pits from dismantled weapons are placed in highly secure storage at Pantex, while uranium parts including CSAs are moved to Y-12. Other non-nuclear components are sent to the Savannah River Site and the National Security Campus at Kansas City for final disposition. Y-12 continues the dismantlement process, taking apart CSAs and recovering needed materials.

Dismantlement not only prevents the potential misuse of nuclear material but also allows recycling of the material for national defense uses such as weapon refurbishment (the Life Extension Program) and fuel for the US Navy's nuclear-powered fleet.

Dismantlement not only prevents the potential misuse of nuclear material but also allows recycling of the material for national defense uses such as weapon refurbishment (the Life Extension Program) and fuel for the US Navy's nuclear-powered fleet, the press release said.

Source: http://oakridgetoday.com/2016/02/26/y-12-finishes-w69-warhead-dismantlement-work/, 26 February 2016.

Obama Plan to De-Fund Savannah River Plutonium Conversion Plant Draws Fire

One of the items in the small type of President Obama's fiscal 2017 budget was the proposal to drop funding for the Savannah River plutonium mixed oxide recycling plant, designed for converting weapons-grade plutonium into fuel for commercial nuclear power plants. The project is years late and billions of dollars over budget. In the budget, the Energy Department's National Nuclear Security Administration said simply that it would "pursue a dilute and dispose approach as a faster, less expensive path to meeting the US commitment to dispose of excess weapons grade plutonium." That proposal, however, has drawn fire from politicians from South Carolina, where about 1,200 jobs and about $300 million a year could be lost. Sens. Lindsay O. Graham (R) and Tim Scott (R) as well as Rep. Joe Wilson (R), whose district includes the Savannah River site, have criticized the plan.

One of the items in the small type of President Obama's fiscal 2017 budget was the proposal to drop funding for the Savannah River plutonium mixed oxide recycling plant, designed for converting weapons-grade plutonium into fuel for commercial nuclear power plants. The project is years late and billions of dollars over budget.

State Attorney General Alan Wilson (R) has filed a lawsuit in federal district court to keep the plant alive, arguing that abandoning it would violate an arms control agreement in 2000 between the US and Russia for disposing of 34 metric tons of weapons-grade plutonium. "The Department of Energy has continually shown disregard for its obligations," he said in a statement. "The federal government is not free to flout the law. This behavior will not be tolerated."

The group also raised concerns about what it called the increasing possibility that rivalry between China, Japan and South Korea – and fears of North Korea's pursuit of more advanced nuclear weapons – could prompt those countries to build similar MOX plutonium plants, which could make it easier later to produce plutonium suitable for additional weapons.

Now a group of some of the most prominent former diplomats and non-proliferation experts – alarmed by the cost and proliferation risks involved with the MOX process – have weighed in on the side of the Obama administration. In a letter to Energy Secretary Ernest Moniz sent 23rd February, the 13 experts said that the arms control agreement with Russia does not require the US to use the MOX recycling plant to deal with the plutonium from decommissioned weapons.

"In fact, the agreement explicitly allows each side to change plutonium disposition methods and was already modified once in 2010 to allow Russia to pursue an alternative disposition approach to its own MOX program, which, like ours today, was judged to be too expensive to complete," the group said. "As long as our government pursues a reasonable alternative to dispose of the surplus material, the agreement is not a barrier to doing so."

The group also raised concerns about what it called the increasing possibility that rivalry between China, Japan and South Korea – and fears of North Korea's pursuit of more advanced nuclear weapons – could prompt those countries to build similar MOX plutonium plants, which could make it easier later to produce plutonium suitable for additional weapons.

"There are increased political pressures to proceed with plutonium separation in Japan and China, and to gain US consent for reprocessing in South Korea," they wrote. "While the plans are to produce plutonium fuel for power reactors, the same plutonium could be used to produce thousands of warheads."

Japan is nearing completion of a costly plutonium recycling plant at Rokkasho, although it has pushed back the start date of the plant. And in South Korea, the letter notes, "shortly after North Korea's latest nuclear-weapon test, both South

Korea's ruling party parliamentary floor leader and the party's chief policy maker publicly urged that South Korea pursue nuclear reprocessing as a military hedge." China is also seeking reprocessing technology from France.

The signatories to the letter include former ambassador Thomas Pickering; Jessica Mathews, a former head of the Carnegie Endowment for International Peace; former senior non-proliferation officials Robert Einhorn and Gary Samore; Ambassador Robert Gallucci, a former assistant secretary of State for political-military affairs; Joseph Nye, a former chairman of the National Intelligence Council; Ploughshares Fund President Joseph Cirincione; former Nuclear Regulatory Commissioners Peter Bradford and Victor Gilinsky; David Freeman, a former chairman of the Tennessee Valley Authority's board of directors; Henry Sokolski, a former Pentagon official for non-proliferation; and Frank von Hippel, a former assistant director for national security at the White House's Office of Science and Technology Policy.

Last year the group wrote to Moniz urging him and the Obama administration to end funding of the Savannah River site. "If we fail to terminate our MOX program, we will have far less credibility to engage them in efforts to restrain such activities in East Asia," the group's letter concluded. "In short, contrary to the claims of its defenders, the arms-control and nuclear security arguments weigh heavily for ending the MOX project, not for continuing it."

Source: https://www.washingtonpost.com/, 25 February 2016.

NUCLEAR TERRORISM

BELGIUM

Nuclear Jihad: Terror Suspect had Video of Top Scientist

Belgian authorities confirmed "concrete" evidence on 18 February of Islamic radicals' long-term goal of using nuclear terrorism on western nations. Thierry Werts, a spokesman for Belgium's federal prosecutor, authenticated Belgian daily newspaper La Dernière Heure's report that a suspect linked with the Nov. 13, 2015, terror attacks in Paris, France, was found with surveillance footage of a top nuclear scientist. The ISIS plot killed 130 across the city, with 89 perishing in the Bataclan theater alone.

Mohamed Bakkali, 26, was arrested in the Belgian town of Auvelais Nov. 30 and is suspected of allowing terrorists to use his home as a hide-out. Video in his possession included ten hours of film taken with a camera hidden in a bush near the Belgian scientist's home. The scientist's name was not disclosed by officials for security reasons. Closed-circuit television cameras in the area showed two men retrieving the camera late at night before driving away with their lights off, the U.K. Independent reported. Sébastien Berg, a spokesman for Belgium's Federal Agency for Nuclear Control, said the agency was quickly informed of the footage in November.

Concrete indications that showed that the terrorists involved in the Paris attacks had the intention to do something involving one of our four nuclear site,If they find a way to spread such material among the population, they could do a lot of damage.

Berg said there were "concrete indications that showed that the terrorists involved in the Paris attacks had the intention to do something involving one of our four nuclear site," the New York Times reported. "If they find a way to spread such material among the population, they could do a lot of damage." Members of Belgium's Parliament were livid over the revelation because they were kept in the dark for months. "Your services possessed this videotape since Nov. 30, and the nuclear control agency was informed immediately," said Jean-Marc Nollet, a Parliament member from Ecolo, Belgium's green party, the Times reported. "So I don't understand how you could have been in possession of this video since Nov. 30, but on Jan. 13, when I questioned you on this, you answered, 'There is no specific threat to the nuclear facilities.'"

The reports out of Belgium came less than 24 hours after Iraq admitted it is still looking for "highly dangerous" radioactive material that was stolen from a storage facility near Basra 2015. A US official, speaking on condition of anonymity, told Reuters that Iraq was also missing a camera that contains highly radioactive Iridium-192. The

material disappeared in November. "They've been looking for it ever since. Whether it was just misplaced, or actually stolen, isn't clear," the official said. ...

Source: http://www.wnd.com/2016/02/nuclear-jihad-terror-suspect-had-video-of-top-scientist/, 19 February 2016.

IRAQ

Missing Radioactive Material Found Dumped in South Iraq

Radioactive material that went missing in Iraq has been found dumped near a petrol station in the southern town of Zubair, officials said, ending speculation it could be acquired by Islamic State and used as a weapon.

Radioactive material that went missing in Iraq has been found dumped near a petrol station in the southern town of Zubair, officials said, ending speculation it could be acquired by Islamic State and used as a weapon. The officials told Reuters the material, stored in a protective case the size of a laptop computer, was undamaged and there were no concerns about radiation. Reuters reported that Iraq had been searching for the material since it was stolen in November from a storage facility belonging to US oilfield services company Weatherford near the southern city of Basra.

It was not immediately clear how the device, owned by Swiss inspections group SGS, ended up in Zubair, around 15 km (9 miles) southwest of Basra. "A passer-by found the radioactive device dumped in Zubair and immediately informed security forces which went with a special radiation prevention team and retrieved the device," the chief of the security panel within Basra provincial council, Jabbar al-Saidi, told Reuters. "After initial checking I can confirm the device is intact 100 percent and there is absolutely no concern of radiation."

A security official close to the investigation said it had been established soon after the material was stolen that it was being kept in Zubair and controls had been tightened to prevent it being taken out of the town. "After failing to take it out of the town, the perpetrators decided to dump it," the security official said. "I assure you it is only a matter of time before we arrest those who stole the radioactive device."

The material, which uses gamma rays to test flaws in materials used for oil and gas pipelines in a process called industrial gamma radiography, is owned by Istanbul-based SGS Turkey, according to the document and officials. The material is classed as a Category 2 radioactive source by the IAEA, meaning that if not managed properly it could cause permanent injury to a person in close proximity to it for minutes or hours, and could be fatal to someone exposed for a period of hours to days. SGS and Weatherford have both denied responsibility for the disappearance of the material in 2015.

Source: http://www.reuters.com/article/us-mideast-crisis-iraq-radioactive-idUSKCN0VU0JY, 21 February 2016.

NUCLEAR SAFETY

FRANCE

The French Nuclear Safety Authority have Discovered a Serious Fault in the Construction of the Pressure Vessel

Before Hinkley C can be built, the EPR reactor of the same design being built at Flamanville in France must be completed and be established generating before 2020, or else the UK government's guarantees and financial agreements fall apart. So it is not surprising that EDF tried to go unnoticed as it drove a convoy carrying the steel lid and pressure vessel from Chalon, where it was produced across France to Flamanville, though this was documented and publicised by Greenpeace.

These two parts, the pressure vessel and lid, could signal the final death tomb of the dream French EPR nuclear reactor, because they do not meet the high quality safety standards required for nuclear technology. In April the French Nuclear Safety Authority, discovered a very serious default in the composition of the steel used in the

pressure vessel. Tests showed excessive presence of carbon, which makes the steel more brittle and subject to breakage. The pressure vessel contains the huge amounts of atomic fission energy in the core.

EDF was quick to minimise the problem and promised other tests. If EDF was serious with the safety measures the company should await the validation of the ASN of the test results that might be released in late 2016 or early 2017. As Yannick Rousselet from Greenpeace France quoted, "Once again, EDF is turning a blind eye to all the issues, continuing as though no one else would notice and going forward anyway until there is no turning back." The nuclear industry is desperate and that new failure in safety could have serious consequences, not only in France, but also in China (Taishan) and England at Hinkley Point, which are among the other vessels produced with the same steel.

If the tests confirm the safety problem, EDF would have to replace the whole vessel, and have to break open and remove the first pressure vessel at Flamanville, adding huge costs and further delays, which would bring the final blow to the industrial jewel already dying. This defective lid could seal the tomb of the EPR reactor!

Source: http://www.bridgwatermercury.co.uk/, 14 February 2016.

JAPAN

Nuclear Watchdog Gives Nod on Safety to Two Aging Reactors for First Time

For the first time, Japan's nuclear watchdog has disclosed that two aging nuclear reactors in operation for more than their basic lifespan of 40 years have passed the new safety standards set after the 2011 Fukushima disaster. The No. 1 and No. 2 reactors of the Takahama nuclear power plant in Fukui Prefecture could now have their operations extended for a further 20 years as the NRA made the announcement on Feb. 24. To extend the operational lives of the two reactors, operator Kansai Electric Power Co. must receive NRA approval by July on three outstanding items – safety measures, detailed designs and extension of operations.

This is the fourth time the NRA has acknowledged that nuclear reactors are meeting the new safety standards, but the first time for those that are at least 40 years old. The other three cases were the No. 1 and the No. 2 reactors at the Sendai nuclear power plant in Kagoshima Prefecture, operated by KEPCo; the No. 3 and the No. 4 reactors at the Takahama plant; and the No. 3 rector at Ikata nuclear power plant in Ehime Prefecture, operated by Shikoku Electric Power Co. After the triple meltdown at the Fukushima No. 1 nuclear power plant in March 2011, laws on nuclear safety were revised. As a result, it was stipulated that the operation period of nuclear reactors is a basic 40 years but that can be extended by up to 20 years–but just one time–with NRA approval.

Although the No. 1 and the No. 2 reactors at the Takahama plant have been operating for more than 40 years, it is a transitional measure until July as Kansai Electric Power has yet to obtain NRA approval for a 20-year extension.

Although the No. 1 and the No. 2 reactors at the Takahama plant have been operating for more than 40 years, it is a transitional measure until July as Kansai Electric Power has yet to obtain NRA approval for a 20-year extension. In March 2015, the utility asked to be screened by the NRA to ensure it was meeting the new safety standards. In April 2015, it applied for an additional 20 years for each reactor.

The NRA has been conducting intensive screenings on the reactors because if Kansai Electric Power cannot obtain approval on safety measures, detailed designs and extension of operations by the July deadline, it will have to decommission the two reactors. In the safety screenings, the main focus was on fire-prevention measures with regard to electric cables. The No. 1 and No. 2 reactors were using cables totaling 1,300 kilometers in length, but they were not fire-retardant. The utility responded by replacing 60 percent of them with fire-retardant cables, and wrapping the remaining 40 percent with fire-

retardant sheets. This met with NRA approval.

With regard to earthquake and tsunami resistance, the utility used the same levels as those for the No. 3 and the No. 4 reactors at Takahama plant, both of which had already been approved by the NRA as meeting the new safety standards. The NRA devoted 389 pages of the screening paper to its opinion that the No. 1 and the No. 2 reactors at Takahama are meeting the new safety standards. The NRA will collect opinions from the public about its conclusions for 30 days from Feb. 25 and then formally decide whether the two reactors are meeting the new standards on safety measures.

With regard to earthquake and tsunami resistance, the utility used the same levels as those for the No. 3 and the No. 4 reactors at Takahama plant, both of which had already been approved by the NRA as meeting the new safety standards.

At the same time, it will go ahead with screenings on the remaining two items—detailed designs and the extension of operations. The screening on the detailed designs will focus on quake-resistant capabilities of important facilities. The screening on the extension of operation will check on the deterioration of facilities. Even if Kansai Electric Power obtains approval on all of the three items, it will take about three years for the utility to finish work on safety measures. Because of that, the operations of Takahama's No. 1 and No. 2 reactors are not expected to be restarted before autumn 2019.

Source:http://ajw.asahi.com/article/behind_ news/ social_ affairs/ AJ201602240072, 24 February 2016.

NUCLEAR WASTE MANAGEMENT

USA

Low-Level Radioactive Waste Illegally Dumped in Estill Landfill, State Official Says

An estimated 1,600 to 1,800 tons of low-level radioactive waste was illegally dumped in an Estill County landfill, and now state officials are warning other solid-waste operators not to accept any of the material. The waste was generated in Ohio, Pennsylvania and West Virginia and then shipped to Kentucky for disposal, said Tony Hatton, director of the Kentucky Division of Waste Management.

The waste was not generated from a nuclear plant, Hatton said. Rather, it is a common, naturally occurring material resulting from oil and gas-drilling activities. When it is processed to recover brine, the radionuclides present in the soil and rocks become concentrated. "This is not high-level waste ... but it certainly should not have been disposed in this landfill," Hatton said. "I don't know if the landfill was aware of it or not." Some other low-level radioactive waste might also have gone to a Greenup County landfill, he said. Hatton sent out a notice end of February to solid-waste facility owners and operators to be on the lookout for such waste.

This is not high-level waste ... but it certainly should not have been disposed in this landfill," Hatton said. "I don't know if the landfill was aware of it or not." Some other low-level radioactive waste might also have gone to a Greenup County landfill.

Kentucky officials learned about the waste through a contractor and a regulatory counterpart in West Virginia, Hatton said. The material was processed in Fairmont, W.Va.

"We learned that a company called Advanced TENORM Services had brokered and arranged for this material to be brought to Blue Ridge Landfill in Estill County," Hatton said. "As best we know, there were 47 sealed containers of this material brought to Estill County. "If you were to lift the top off a box, it would look like a box full of mud with some water in it," Hatton said. The material came to Kentucky from July through November 2015, he said. It is illegal to bring such waste into Kentucky from most other states. However, Kentucky has an agreement that allows waste to come in from Illinois.

Some corrective action and fines might be required after further investigation, Hatton said.

"The greatest potential for exposure would have happened when the material was shipped" to Estill County and managed there, he said. In a statement, Advanced Disposal, which owns and operates the Estill County landfill, said the material "was characterized and profiled" as "non-hazardous." "All approval processes were followed, and it is potentially a criminal act if it is discovered that a generator or its representative falsified documentation and misrepresented the waste material composition," the statement said.

"The company believes that there has been no risk to human health and environment and looks forward to bring closure to this event and to continue the safe and environmentally sound operations of the landfill." The state is trying to determine whether the material poses a public health problem, Hatton said. He said he doesn't believe the material poses much of "an imminent threat or danger" now that it has been buried at the landfill. It is possible the material might be dug up and removed, "but there could be risks associated with digging it up," Hatton said. "But that may not outweigh the potential risks of leaving it there." Matthew McKinley, branch manager for the Radiation Health Branch of the state Division of Public Health Protection, could not be immediately reached for comment.

Source: http://www.kentucky.com/news/state/article62496922.html, 25 February 2016.

Centre for Air Power Studies

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

Centre for Air Power Studies

P-284
Arjan Path, Subroto Park,
New Delhi - 110010
Tel.: +91 - 11 - 25699131/32
Fax: +91 - 11 - 25682533
Email: capsnetdroff@gmail.com
Website: www.capsindia.org

Edited by: Director General, CAPS

Editorial Team: Hina Pandey, Arjun Subramanian P, Chandra Rekha, Manisha Chaurasiya, Deep Jyoti Barman

Composed by: CAPS