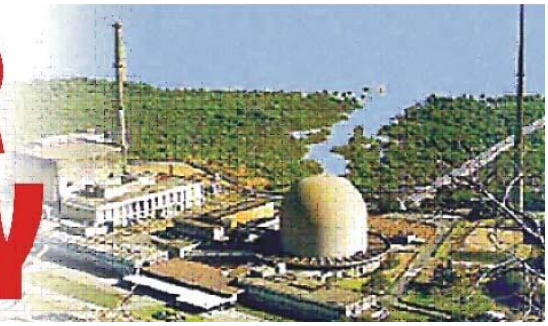
NUCLEAR SECURITY



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

Vol 09, No. 16, 15 JUNE 2015

OPINION – Ashok Kapur

Nuclear Disarmament A Dead End in Modern Diplomacy

The recent month-long Nuclear NPT review conference ended in failure. Egypt had proposed an international conference to discuss nuclear disarmament of the Middle East. Israel's allies – including the United States and Canada among others – objected as it would have cornered that nation. ... There are many reasons why the disarmament and non-proliferation advocacy of Western governments and non-governmental organizations is now a relic of the past. This is disappointing for Canadians, because they invested considerable diplomatic capital and other resources to corner the nuclear weapons-capable states – especially India, Pakistan, Iran, Brazil, Argentina and South Africa – to join the nuclear treaty, but to no avail.

The non-proliferation and disarmament advocates had two main tools in their work. The first was the NPT.... It was presented to the world at the time as a major bargain. In return for renouncing nuclear arms, Article 6 of the treaty promised that the existing nuclear powers would eventually reduce and eliminate nuclear weapons. This was a deal struck among the five nuclear weapons states that are also the five veto-wielding members of the United Nations, and the non-nuclear states. Since 1960s, the nuclear powers have nothing to show that they have kept their promise. Nor do they have any reason to give up their arms in a conflict-prone world, and the non-nuclear countries feel let down that the so-called bargain was made in bad faith.

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The second main tool was to use the IAEA in Vienna to monitor the nuclear activities of the non-nuclear states. The agency was established in the mid-1950s with the euphoria created by president Dwight Eisenhower's plan to promote atoms for peace for a country's industrial development. When India conducted its first nuclear test in 1974, it was sanctioned and the atomic energy agency was

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asked to shift its focus from the promotion of peaceful uses of nuclear energy to verification of the peaceful nature of nuclear programs of non-nuclear countries.

India's nuclear test was the first major attack on the NPT system, but India could not be outlawed because it did not accept the treaty, and as a sovereign state it was no obliged to follow it. The world community was outraged by India's action, and with the imposition of sanctions against that nation came declarations that the treaty system was the pillar of international security, and nuclear disarmament was still on the global agenda. Canada's then-foreign affairs minister, Lloyd Axworthy, and his Australian colleagues were at the forefront of this campaign. But the Axworthy argument lost credibility when India tested again in 1998, declared it was a nuclear weapon power, and following a brief period of hand-wringing by Western governments, they came around to the view that India was a responsible nuclear power and it ought to be engaged as such in strategic affairs.

The sanctions were lifted, led by George W. Bush's leadership, and Prime Minister Stephen Harper followed suit. The belief that the NPT and disarmament would make the world safe from nuclear weapons was nourished by the renunciation of nuclear arms by Brazil, Argentina, South Africa and Libya. But these events hid two important truths. In the major regions of conflict, the regional powers opted for nuclear weapons development, and second, none of the nuclear powers had the slightest interest in disarming themselves.

Not surprisingly, Western disarmament ambassadors have been telling others what to do, but "do as I say, not as I do" lacks conviction and credibility in the minds of Third World practitioners. The latter argue that if nuclear weapons are necessary for the nuclear powers and their allies then why not for Third World states. As well, world conditions have changed. The NPT was essentially a bargain between the US and the Soviet Union during the Cold War. It took shape after the 1962 Cuban Missile Crisis threatened to destroy the world.

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The lesson is that international arms control agreements work if the principals agree, but today, Washington and Moscow are at odds over Ukraine and NATO's westward expansion. Two other lessons are important. First, great powers have historically tried to maintain their monopoly over modern technology, but this is a losing battle because others are capable of mastering modern science and technology. Second, in their mind there are two main tests of a modern industrial country. It must master the ability to develop and use chemical explosives for industrial purposes and nuclear explosives to put a lid on the ability of the opposition to escalate and fight and to gain an advantage. These are the lessons of a nuclearizing world.

Source: http://www.therecord.com, 10 June 2015.

OPINION – K S Parthasarathy

Muddled Up Views on India's Nuclear Program

Mr. Usman Ali Khan's muddled up OpEd (Indian Nuclear Muddle, May 15, 2015) on India's nuclear program is tellingly short on facts and abundantly long on unsupported opinions. Pakistan plans to increase its nuclear power capacity from 725 MW to 8800 MW by 2020. India hopes to increase it from 5780 MW to 27,800 MW by 2024. Mr Khan ably supports Pakistan's program (Pakistan and the Nuclear Option – OpEd, March 11, 2015). However, he portrays India's plan as "nuclear lust"! His assessment that the Indian Nuclear Power Industry remains "shrouded in secrecy and opacity, refusing to reveal details on safety", is incorrect.

The Indian Parliament reviews the activities of the NPCIL. The CAG of India audits NPCIL's accounts. AERB publishes safety

performance of India's reactors and describes incidents relevant to safety. The reports to the Convention of Nuclear Safety and safety information exchanged between India and the IAEA are equally useful. If NPCIL is secretive, one would not see such details in public domain.

Khan parroted the views of professional critics for whom anti nuclear sentiments are articles of faith. Fair enough, for their survival, they will have to frame all nuclear incidents big or small in a particular angle. They use catchy anecdotes, rants of individuals with hurt egos and some facts cleverly mixed with fiction in their "analysis"! Relying on such reports, Khan conjures up catastrophic nuclear events in India.

He deftly ignores India's achievements. India operates seven uranium mines and two mills; fabricates fuel elements; produces heavy water; designs, constructs and operates nuclear power reactors; reprocesses used fuel and develops advanced waste management technologies. NPCIL is erecting four nuclear power reactors of 700 MW capacity at Kakrapar and Kota and plans to install more LWRs and PHWRs at four additional sites. India may commission its prototype fast breeder reactor (500 MW) shortly.

From a fleet of 20 nuclear power reactors, NPCIL earned a profit after tax of Rs. 22,990 million during FY 2013-14. Units 1 &2 of Tarapur Atomic Power Station provide the cheapest non-hydro power to the Indian grid at Re 0.97 (US$ 0.014) per kWh. The average tariff of nuclear power at about Rs 2.71 ($ 0.044) per kWh in 2013-14 is comparable to those of other sources. The cost of power from the latest commissioned Kudankul am plant is Rs 3.94 (US$ 0.0645) per kWh.

The Unit 5 of the Rajasthan Atomic Power Station operated continuously for 765 days, second longest in the history of nuclear power and the longest in the last two decades. With average Plant Load factors of 83% in 2013-14, Indian reactors are performing well. From a fleet of 20 nuclear power reactors, NPCIL earned a profit after tax of Rs. 22,990 million during FY 2013-14. Units 1 &2 of Tarapur Atomic Power Station provide the cheapest non-hydro power to the Indian grid at Re 0.97 (US$ 0.014) per kWh. The average tariff of nuclear power at about Rs 2.71 ($ 0.044) per kWh in 2013-14 is comparable to those of other sources. The cost of power from the latest commissioned Kudankul am plant is Rs 3.94 (US$ 0.0645) per kWh. Can what Mr Khan calls as a "chronically inadequate management", achieve all these? India's latest report to the Convention on Nuclear Safety proves that Khan's claim that India "simply shrugged off the Fukushima experience" is without any basis. He portrays the villagers' protest against Jaitapur nuclear power plant as an indication of repeated failures at different plant sites in India.

Acquisition of land for projects including nuclear projects is a contentious issue. In the 2014 general election, SP Udayakumar, an anti-nuclear activist who contested on the issue of Kudankulam Nuclear Power Plant secured 1.53% (15,134 out of 9,90,337) the votes polled! Activists may stop kite flying! Villagers of Jaitapur will find reason. Once they receive good compensation, they will accept the plant in their neighborhood. "The story is one of ignorance, lack of adequate regulation, and finally a total breakdown of institutional responsibility within the Indian republic. They are consuming and bathing in nuclear poison". Khan's lament belongs to that of an activist.

When lack of domain knowledge and blind environmental activism combine, sobriety suffers. Regrettably, Mr Khan who competently defends Pakistan's nuclear power program (Pakistan Nuclear Energy: Let There Be 'Light' – *Eurasia Review*, April 3, 2014) behaves like an activist while reporting on India's program!

The Atomic Energy Act 1962, rules issued under it and AERB's safety codes and standards form the legal frame work governing India's nuclear program. Various agencies and authorities fulfill their mandates. Khan's tale on the "breakdown of institutional responsibility" is the product of a

fertile imagination. Khan finds a 16 year old article by Mr Gopi Rethinaraj as supporting his wrong notion that Indian nuclear establishment is virtually unaccountable to anyone. Rethinaraj claimed that the Department of Atomic Energy exploited the ignorance of India's judiciary and political establishment on nuclear issues, implying thereby that journalists like him were cleverer as they knew nuclear matters!

Do not believe Rethinaraj. Independent study would show that nuclear legislation of virtually every country contains some provisions to maintain secrecy. Khan may inform Rethinaraj that presently furnishing dose records to radiation workers is mandatory in India. In conclusion, "India's nuclear muddle" is a tale told by someone, "full of sound and fury, signifying nothing".

Source: KS Parthasarathy is a former secretary of the Atomic Energy Regulatory Board. http://www.eurasiareview.com, 13 June 2015.

OPINION – Arun Kumar Singh

N-Carriers Vs N-Subs

The US defence secretary Ashton Carter is expected to visit Visakhapatnam on June 3 and then New Delhi on June 4-5 to sign the 10-year Indo-US Enhanced Defence Framework Agreement, and convince India to accept an American design for the recently announced indigenous 65,000-ton aircraft carrier, along with the latest American and AAWS, and operate the latest American carrier-borne F-35C jet fighters.

In April 2015, the media reported that the defence ministry had cleared various pending projects, including funding of an initial Rs 30 crore as "seed money" to commence project work on India's next indigenous 65,000-ton aircraft carrier, to be named INS Vishal. The Indian Navy currently operates non-nuclear-powered aircraft carriers, i.e. the 56-year-old, 28,0000-ton, steam-driven INS Viraat and the 43,000-ton, steam-driven INS Vikramaditya. At the same time, the gas-turbine-powered 37,000-ton INS Vikrant is under construction and is expected to join the Navy in 2018. The reasons stated for the new INS Vishal are valid, i.e. for an aircraft carrier to be viable, it needs to embark at least 36 fighter aircraft and another 12 helicopters, and this is possible only on carriers larger than 65,000 tons (INS Vikramaditya and INS Vikrant can each embark only 18 fighters and 12 helicopters).

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A debate has now started about the need or otherwise of nuclear propulsion for the proposed INS Vishal. Nuclear power is expensive to acquire, maintain and needs highly trained personnel to operate. While nuclear power provides natural stealth to submarines by enabling them to remain totally submerged in the ocean depths for months, a nuclear-powered aircraft carrier is visible and detectable by electronic and satellite surveillance as it sails on the ocean surface. Additionally, while nuclear power provides long periods of propulsion without refuelling, American nuclear-powered aircraft carriers still need weekly replenishment at sea (from a non-nuclear replenishment ship) of aviation fuel, lubricants, air armaments etc, and the same replenishment ship, needs to refuel another eight more conventionally powered warships every three days (these warships protect the aircraft carrier against various enemy threats).

In 1954, the world's first nuclear submarine, the American USS Nautilus, was commissioned. It operated on LEU, and this reactor fuel enabled the single reactor submarine to operate for two years before uranium refuelling, and provided a total of 200 days sailing at economic speed. Reactor uranium fuelling is expensive and time consuming. To overcome this shortcoming, the Americans gradually increased the uranium enrichment to HEU to enable present-day

American nuclear submarines and nuclear-powered aircraft carriers to operate for 25 years, without reactor fuel change. India does not have this HEU propulsion technology yet.

Apart from nuclear or conventional propulsion, aircraft carriers are further subdivided into three categories. The first is the CATOBAR. It is the most expensive and most capable (rapid aircraft launch rate of one aircraft every 20 seconds, while the other two carrier types can launch at one minute per aircraft). It uses one or more catapults to launch aircraft within a 150-metre deck length and arrester wires to recover the aircraft which land within a 100-metre deck length by using an aircraft tail hook to attach themselves to one of the three or four arrester wires.

Earlier, American aircraft carriers used steam catapults and hydraulic arrester wires, but now the latest 2015 American Ford class carrier will operate the new EMALS and AAWS. These two new systems, which are now on offer to the Indian Navy, require the aircraft carrier to produce three times more electric power than earlier CATOBAR designs.

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The second type of carrier is the STOVL type that is the simplest and cheapest. INS Viraat is an example of STOVL, where the sub-sonic Sea Harrier jets take off in about 200 metres deck length from a ski jump ramp, and land vertically. The American supersonic F-35B is the latest stealth jet fighter capable of such short take-off and vertical landing operations.

The third type of carrier is the STOBAR, which is used on INS Vikramaditya (and also for the INS Vikrant under construction). Here the Russian MiG-29K or the Indian light combat aircraft takes off from 200 metres deck length (without catapult) from a ski jump ramp and lands in 100 metres deck length using its tail hook to catch one of three hydraulic arrester wires.

The UK has got nuclear reactor technology for its nuclear submarines, but has wisely decided that its next two 65,000-ton aircraft carriers (due for commissioning in 2018 and 2020) will be non-nuclear, STOVL type and conventionally powered by gas turbines. The aircraft selected are the American F-35B jets. These British carriers are estimated to cost about $4 billion each (the new American nuclear Ford class 100,000-ton carrier with EMALS and AAWS costs $13 billion).

Before India embarks on a new 65,000-ton aircraft carrier and its aircraft, it needs to look closely at funding availability (for aircraft, ship, spares, training etc), state of indigenous marine nuclear powered reactor technology, availability of indigenous uranium supplies (and whether our limited uranium stocks are better used for indigenous nuclear powered submarines), and, finally, vulnerability of the aircraft carrier to Chinese nuclear submarines and the new-shore-based 1,500-km-range DF-21D, anti-aircraft carrier ballistic missile system which may be based on Pakistan's coast. The aircraft would need to be a fifth-generation stealth fighter like the American F-35B (STOVL) or a modified version of the Russian FGFA (STOBAR) planned for the Indian Air Force. To put it simply, India could build two STOVL or two STOBAR non-nuclear carriers for the cost of one nuclear CATOBAR carrier. The money saved could be gainfully used for indigenous production of critically needed nuclear and conventional submarines.

Source: http://www.asianage.com, 02 June 2015.

OPINION – Jeffrey Frank

The Age of Nuclear Drift

As if to add to a list of international nightmares, the *Sunday Times of London* recently reported that Saudi Arabia has made the "strategic decision" to buy "off-the-shelf" atomic weapons from Pakistan. The Saudis denied the report, which was attributed to "senior American officials," and may have more to do with the rhetoric stirred up by the final days of nuclear talks between Iran and the United States than with the Kingdom's immediate plans, but the basic scenario nonetheless had a kind of plausibility. After all, the Saudis helped finance the Pakistani program, which had been guided by the nuclear scientist Abdul Qadeer Khan. (Its worrisome evolution was described by Steve Coll in this magazine.)

The leaders of Saudi Arabia, a Sunni Arab state, are fearful of what may come of any deal between the West and Shiite Iran, even if it serves to scale back and provide some oversight of Iran's secretive nuclear ambitions. "For the Saudis the moment has come," a former American official told the *Sunday Times*. Why do such moments keep coming? That the demand for nuclear arms has a way of growing and that the technology for making them is spreading is not a new concern. Secretary of War Henry L. Stimson worried about that seventy years ago, when he informed President Truman, who had just succeeded to the Presidency after Franklin Roosevelt's death, "Within four months we shall in all probability have completed the most terrible weapon ever known in human history, one bomb of which could destroy a whole city." (His timetable was accurate; the first atomic bomb was dropped on Hiroshima on Aug 6, 1945, less than four months after his talk with Truman.)

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In that briefing, on April 25, 1945, Stimson also predicted that, someday, "such a weapon may be constructed in secret and used suddenly and effectively with devastating power by a willful nation or group against an unsuspecting nation or group of much greater size and material power. ... The world in its present state of moral advancement compared with its technical development would be eventually at the mercy of such a weapon." In the world's present moral and political state, North Korea, which has already tested an atomic device, recently claimed to have launched a ballistic missile from a submarine—a weapons technology that gave the United States years of nuclear superiority during the Cold War.

North Korea's alarming, not-so-comical leader, Kim Jong-un, compared the test to his nation's launch of a wobbly, short-lived orbiting satellite in late 2012. According to the Korean Central News Agency, Kim said that it would "make our enemies lose sleep." An even better reason to lose sleep may be found in the Defense Department's latest report on Chinese military power, which says that China's arsenal now includes the MIRV, or multiple warheads carried by a single intercontinental ballistic missile.

Until now, only Britain, France, Russia, and the United States could make that claim, a sign that the competition is not about to abate. You would think that, as an American election approaches, this would be an appropriate subject for the men and women running for office. It was a topic more than a quarter century ago, when Ronald Reagan and Jimmy Carter held their Presidential debate, in Cleveland, a face-off best remembered for Reagan's skill at dominating the evening with lines like "There you go again," directed at Carter, and "It might be well if you would ask yourself, are you better off than you were four years ago?," directed at television viewers.

That debate was held at a time when fifty-some Americans had been held hostage in Iran for more than a year; when the fate of the second SALT II awaited Senate approval (which it never got, though both nations agreed to abide by it); and when worries about terrorism were already

widespread. Carter said, "Ultimately, the most serious terrorist threat is if one of those radical nations, who believe in terrorism as a policy, should have atomic weapons. Both I and all my predecessors have had a deep commitment to controlling the proliferation of nuclear weapons in countries like Libya or Iraq. We have even alienated some of our closest trade partners because we have insisted upon the control of the spread of nuclear weapons to those potentially terrorist countries." And then Carter pushed too hard: "I had a discussion with my daughter, Amy, the other day, before I came here, to ask her what the most important issue was. She said she thought nuclear weaponry and the control of nuclear arms."

That struck many commentators as funny—that the President would have talked about nuclear proliferation with his young daughter. But Carter, a former naval officer, had served on a (non-nuclear) submarine and understood the issue, and it's not that hard to believe that he really had chatted about it with Amy, who had just turned thirteen. Reagan, when he debated Carter, sounded skeptical about SALT, but he took the issue very seriously. Some Reagan scholars believe that, when he was younger, he was so affected by Hiroshima and Nagasaki that he thought that any meaningful peace required the total elimination of nuclear weapons—a subject he broached with the Soviet leader Mikhail Gorbachev at their Reykjavik, Iceland, summit in October, 1986....

Reagan's legacy includes START, which was signed during the third year of the George H.W. Bush Administration—several months before the breakup of the Soviet Union left multiple incipient nations, former Soviet republics, with significant nuclear arsenals. That gave birth to the phrase "loose nukes," a problem addressed, in that instance, with a transfer of the warheads to Russia, but which on a broader scale seems to have been put in the back of a foreign-policy drawer.

America in the late spring of 1945 was about to face the problems of the postwar world from a position of unprecedented strength. The phrase "asymmetric warfare" was not yet part of the language. When it came to Presidential politics, it was not yet a place that could take even half seriously the self-promoters, provincial office holders, and anti-science advocates who have noisily announced their participation in the Presidential campaign of 2016. The degree to which today's candidates may have thought about the global implications of Stimson's long-ago meeting with Truman is a useful standard by which to measure their understanding of, and fitness for, the job they're seeking in an infinitely more dangerous era. We are caught not so much in an arms race but in an age of nuclear drift.

Source: http://www.newyorker.com, 10 June 2015.

OPINION – Fareed Zakaria

Why Saudi Arabia Can't Get a Nuclear Weapon

Of the many unnerving aspects of the future of the Middle East, a nuclear arms race would top the list. And to feed that unease, Saudi Arabia has been periodically dropping hints that, should Iran's nuclear ambitions go unchecked, it might just have to get nuclear weapons itself. Recently, the Saudi ambassador to London made yet another explicit threat, warning that "all options will be on the table." Oh, please! Saudi Arabia isn't going to build a nuclear weapon. Saudi Arabia can't build a nuclear weapon. Saudi Arabia hasn't even built a car. (By 2017, after much effort, the country is expected to manufacture its first automobile.)

Saudi Arabia can dig holes in the ground and pump out oil but little else. Oil revenue is about 45 % of its gross domestic product, a staggeringly high figure, much larger than petro-states such as Nigeria and Venezuela. It makes up almost 90 % of the Saudi government's revenue. Despite decades of massive government investment, lavish subsidies and cheap energy, manufacturing is less than 10 % of Saudi GDP. Where would Saudi Arabia train the scientists to work on its secret program? The country's education system is backward and dysfunctional, having been largely handed over to its puritanical and reactionary religious establishment. The country ranks 73rd in the quality of its math and science education,

according to the World Economic Forum — abysmally low for a rich country. Iran, despite 36 years of sanctions and a much lower per capita GDP, fares far better at 44.

And who would work in Saudi Arabia's imagined nuclear industry? In a penetrating book, Karen Elliott House, formerly of the Wall Street Journal, describes the Saudi labor market: "One of every three people in Saudi Arabia is a foreigner. Two out of every three people with a job of any sort are foreign. And in Saudi Arabia's anemic private sector, fully nine out of ten people holding jobs are non-Saudi. . . . Saudi Arabia, in short, is a society in which all too many men do not want to work at jobs for which they are qualified; in which women by and large aren't allowed to work; and in which, as a result, most of the work is done by foreigners."

But couldn't Saudi Arabia simply buy a nuclear bomb? That's highly unlikely. Any such effort would have to take place secretly, under the threat of sanctions, Western retaliation and interception. Saudi Arabia depends heavily on foreigners and their firms to help with its energy industry, build its infrastructure, buy its oil and sell it goods and services.

None of this is to suggest that the kingdom is in danger of collapse. Far from it. The regime's finances are strong, though public spending keeps rising and oil revenue has been declining. The royal family has deftly used patronage, politics, religion and repression to keep the country stable and quiescent. But that has produced a system of stagnation for most, with a gilded elite surfing on top with almost unimaginable sums of money. Saudi Arabia's increased assertiveness has been portrayed as strategic. In fact, it is a panicked and emotional response to Iran, fueled in no small measure by long-standing anti-Shiite bigotry. It is pique masquerading as strategy. In October 2013, after having spent years and millions of dollars campaigning for a seat on the UN Security Council, it abruptly declined the post at the last minute, signaling that it was annoyed at US policy in its region.

Its most recent international activism, the air campaign in Yemen, has badly backfired. Bruce Riedel, a former top White House aide, says that damage to civilians and physical infrastructure "has created considerable bad blood between Yemenis and their rich Gulf neighbors that will poison relations for years. Yemenis always resented their rich brothers, and now many will want revenge." He notes that the air campaign is being directed by the new defense minister, the king's 29-year-old son, who has no experience in military affairs or much else.

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Source: http://www.washingtonpost.com, 11 June 2015.

NUCLEAR STRATEGY

USA

Courtney Faces Fight Over Special Fund for Nuclear Subs

The National Sea-Based Deterrence Fund, an innovative way to pay for an expensive new class of nuclear subs likely to be built in Connecticut, was established a year ago without much fanfare, but is now embroiled in a political fight. The now-

controversial fund was promoted by Reps. Randy Forbes, R-Va., who represents Newport News, Va.; and Joe Courtney, D-2nd District, who represents Electric Boat and the New London Naval Submarine base. But a massive defense spending bill the House will consider this second week of June includes a prohibition on financing the submarine fund.

In addition, a nonprofit watchdog group has raised concerns that two Navy officials interested in the fund may have violated restrictions of the Anti-Lobbying Act, which prohibits federal agencies from using taxpayer money to conduct grassroots lobbying of Congress. The deterrence fund would use money that is not part of the Navy's shipbuilding budget to help pay for a new class of nuclear ballistic-missile submarine that would replace the aging Ohio-class boats. The replacement submarines would be the largest in the US military – and cost at least $6 billion each. The Virginia-class attack submarines, which do not carry ballistic missiles, cost about $2.7 billion apiece.

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Anti-spending groups have condemned the National Sea-Based Deterrence fund as a budgeting gimmick, and congressional appropriators have rejected it. But to Courtney, the submarine fund is needed to avoid "swamping the rest of the Navy's shipbuilding budget." The Navy budget is too small to provide for maintenance of the existing fleet and also pay for the new sub program, a potentially important source of employment for the state. Courtney says there is precedence for establishing a separate fund to pay for an expensive weapons system. For example, missile defense was built with a special, separate account, he said.

But in these budget-conscious times in Congress, there's resistance to the National Sea-Based Deterrence Fund. Under a $579 billion House defense spending bill that would provide billions of dollars for weapons systems built by Connecticut defense contractors, it would be eliminated. "None of the funds provided in this or any other Act may be transferred to the National Sea-Based Deterrence Fund, "the defense bill says. The fund was established in 2014 by the House Armed Services Committee, which counts Courtney and Forbes among its members, in a bill that reauthorized Pentagon programs. 2015's defense authorization bill would empower the defense secretary to divert unspent money from anywhere in the Pentagon into the submarine fund.

Forbes and Courtney were able last May to easily beat back an amendment sponsored by Rep. Earl Blumenauer, D-Ore., that would have eliminated the fund in the authorization bill. They hope to have the same success when they introduce an amendment to the defense spending bill. It would strip out the language prohibiting any spending on the National Sea-Based Deterrence Fund. "We're prepared to go out there and make the same arguments," Courtney said. Opposition by the House Appropriations Committee to the submarine fund does not mean there's opposition to continuing the Ohio-class replacement program, however. The defense spending bill contains about $1.4 billion to continue research and design work on the Ohio-class replacement.

***Questionable Lobbying and a New Mission*:** Mandy Smithberger, the director of the Project on Government Oversight, a nonprofit, non-partisan government accountability organization, said establishing the National Sea-Based Deterrence Fund creates a bad precedent, opening the door for any expensive weapons program to receive its own separate budget. The organization calls the fund "reckless and unaffordable." The Ohio-class replacement sub "is as important as any other weapons system," Smithberger said. "Allowing the Navy to fund this program separately reduces discipline in the program and increases the likelihood of gross cost overruns."

POGO has contacted the GAO and the Senate Armed Services Committee about allegations that two Navy officers violated a ban on the use of taxpayer funds to lobby for the fund. The officers,

who are up for promotions, are Admiral John M. Richardson, recently nominated to become the next Naval Chief of Operations, and Rear Admiral Joe Tofalo. The officers reportedly appealed to attendees of the Naval Submarine League's 2014 Annual Symposium to contact their members of Congress to support the Sea-Based Deterrence Fund and offered help with talking points and messaging.

***The Navy did not Respond to Requests for Comment*:** But the Navy did announce a new command for Naval Submarine Base New London in Groton on 9 June. It said it would establish an Undersea War fighting Development Center at the base that would command two detachments located in San Diego, Calif., and Norfolk, Va. Courtney said the establishment of the center expands the mission of the submarine base by adding 14 officers, 19 enlisted sailors, and 19 civilians to support the training of Navy forces in advanced tactics, techniques and procedures for anti-submarine warfare. "It's about as profound a statement by the Navy as to Groton's military value as you can reasonably ask for," he said.

Source: http://ctmirror.org, 10 June 2015.

BALLISTIC MISSILE DEFENCE

FRANCE

Thales Reveals Ballistic Missile Early Warning Radar

Thales has revealed details of the ballistic missile early warning radar that it is developing under contract to the French Ministry of Defence and Onera, the French government aerospace research agency. The work is a first for Europe and has potential application to the NATO active layered theatre ballistic missile defense system for that continent. The contract for an initial demonstration of capability was awarded in 2011, and Thales said that it will install a subscale system for tests at an MoD site in 2015.

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This system has the French acronym DRTLP and consists of only one of the eight columns of radiating elements that would make up an operational TLP system. Ronan Moulinet from Thales Air Systems SAS showed journalists one of five 3- by 4-meter sub-panels that make up a column, which is currently under test at the company's Limours radar facility near Paris. He declined to specify against which ballistic missile launches the DRTLP could be tested, but it will face westward across the Atlantic from the site in southwest France, and have a range of 3,000 km.

Like the Raytheon BMEWS known as Pave Paws, the TLP is low-frequency (UHF) radar. It can detect and track ballistic missiles from the boost to the exo-atmospheric phase and can be a "backbone of early warning capability," according to Moulinet. He also noted that Pave Paws is a fixed-site system; the TLP's modular design means that it can be dismantled and moved from site to site by container. He compared the TLP favorably with Raytheon's TPY-2 radar, which is similarly designed to provide early warning of incoming ballistic missiles. However, that radar operates in X-band, has a narrower field of view, and has to be deployed closer to the predicted launch points of the missiles.

Source: https://www.ainonline.com, 04 June 2015.

GERMANY

Germany Opts for 'Next Generation' Missile Defense System Meads

Germany has concluded a deal to buy the state of the art MEADS missile defense system. Bundeswehr chief of staff Volker Wieker has approved the deal, according to media reports. The German government has opted for the MEADS built by American defense contractor Lockheed Martin and the European defense group MBDA,

instead of the Patriot system developed by American defense contractor Raytheon Corporation. The deal follows a months-long bidding war between both defense parties.

German television channel ARD reported that the procurement order could be worth 4 billion euros ($4.5 billion), adding that it had been approved by Volker Wieker, chief of staff of the Bundeswehr, Germany's armed forces. Germany has long sought to upgrade its current missile defense system comprised of Patriot missile equipment developed in the 1980s by Raytheon. The venture to develop the state of the art defense system was taken up by euro MBDA, which includes MBDA Deutschland, MBDA Italy, and Lockheed Martin.

The MBDA said in a statement in 2014 that MEADS "combines superior battlefield protection with new flexibility to protect forces and critical assets against tactical ballistic missiles, cruise missiles, unmanned aerial systems (drones) and aircraft." Earlier in 2015, Lockheed CEO Marillyn A. Hewson said the defense contractor was developing "the next generation of missile defense technology, focusing on effective, mobile, affordable, and adaptable systems," adding that MEADS "fits that mold." "Each MEADS element is lightweight and truck-mounted, with rotating radars and advanced launchers to provide 360-degree coverage capability to the warfighter. It's no wonder that MEADS is a candidate for the national defense system of a number of European countries, including Germany and Italy," Hewson said.

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Source: http://www.dw.de, 09 June 2015.

RUSSIA

Russia Successfully Launches 'Missile Defence Killer' Despite Warnings from Pentagon

The Russian defence ministry announced the successful launch of a short-range anti-missile system that can supposedly pierce any ABM system. The intercontinental missile was launched on 9 June from the Plesetsk Cosmodrome in northwestern Russia, said state-run *RIA Novosti* news agency. "The new intercontinental ballistic missile is intended to strengthen the capabilities of Russia's Strategic Missile Forces, including its capabilities for overcoming anti-missile defences," Defence Ministry spokesman Vadim Koval told *RIA Novosti*.

"The launch was aimed at confirming the performance characteristics of missile defence shield anti-missiles operational in the Aerospace Defence Forces," the defence ministry said, according to Russia's TASS news agency. According to Lieutenant General Sergei Lobov, deputy commander of the Aerospace Defense Forces, "an anti-missile of the missile defence shield successfully accomplished its task and destroyed a simulated target at the designated time." The disclosure comes four days after Pentagon officials said the US was looking at deploying missiles in Europe to defend against possible threats from Russia.

Thenew intercontinental ballistic missile is intended to strengthen the capabilities of Russia's Strategic Missile Forces, including its capabilities for overcoming anti-missile defences.

The US is also looking at deploying land-based missiles in Europe as a warning shot to Russia's alleged violation of a Cold War-era nuclear arms treaty, according to an AP report. In 2014, Washington is said to have accused Moscow of violating the INF treaty, by testing a banned ground-launched cruise missile. "The administration is considering an array of potential military responses to Russia's ongoing violation of the INF Treaty," Pentagon spokesman Lt. Col. Joe Sowers was quoted in an AFP report. "All the options under consideration are designed to ensure that Russia gains no significant military advantage from their violation."

In 2015, Russia is strengthening its missile

defense shield, tripling the production of missiles - for use in air-defense and missile-defense complexes - compared to 2014. Russia maintains around 58 silo-based Soviet-made P36M ('SS-18 Satan' NATO classification) ballistic missiles, believed to be the most powerful in the world with up to 10 megaton-class warheads. "The defence-industrial complex has been ordered to step up the production of missiles manufactured for air defence and missile defence complexes by 200%, which is to considerably increase the capabilities of the newly-created arm of the Russian armed forces – the Air and Space Force," a source at the Russian defense ministry told TASS.

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Russian Deputy Prime Minister Dmitry Rogozin welcomed the test, calling the new system a "missile defence killer.... Neither current nor future American missile defence systems will be able to prevent that missile from hitting a target dead on."

Source: http://www.ibtimes.co.uk, 09 June 2015.

SOUTH KOREA

South Korea Looks to Buy $1.2b Missile Defense System

South Korea is the latest ally to turn to the United States to beef up missile defense, which could translate to about $2 billion in the coffers of Washington companies. Bottom of the State Department approved a $1.91 billion possible foreign military sale to South Korea for three Aegis Combat Systems from Lockheed Martin Corp that use computer and radar technology to track and guide weapons to destroy enemy targets. The buy, which is now in the hands of Congress for final approval, will include related equipment and services as well, some of which will be provided by the Raytheon Co and General Dynamics Corp. It also includes offset agreements that require investment by the contractors in South Korea, likely through purchases from domestic suppliers of goods or services, but those details will be finalized during negotiations between South Korea and the companies.

Of course, this deal comes as the Pentagon continues its efforts to rebalance toward the Asia-Pacific region, emphasizing missile defense as a key requirement of allies.

The Pentagon called Aegis "the keystone in the [South Korean] Navy's efforts to upgrade its shipboard combat and ballistic missile defense capability," allowing ships to defend against possible aggression and protect sea lines of communications. Indeed, the Aegis buy would be just the latest one by South Korea. It comes about a year after a third Aegis-equipped destroyer in South Korea successfully completed a series of trials to confirm readiness of the ship's combat system. Aegis is used globally by six navies, across seven ship classes. It includes Lockheed Martin's SPY-1 radar, paired with the MK 41 Vertical Launching System. The latest version is capable of simultaneous anti-air warfare and ballistic missile defense.

Of course, this deal comes as the Pentagon continues its efforts to rebalance toward the Asia-Pacific region, emphasizing missile defense as a key requirement of allies. It also comes three months after Deputy Secretary Bob Work called upon industry to come up with a low-cost way to defeat an inbound missile raid to strengthen the Pentagon's own defense capabilities.

Source: http://www.bizjournals.com, 11 June 2015.

USA

Navy: Sailors Laying Groundwork for Missile Shield in Romania

The first sailors are now on station at the controversial missile defense shield in Romania, Navy Region Europe announced on 8 June. The sailors arrived last May as part of an initial wave

that will "lay the groundwork for a full team deployment." The announcement means the AEGIS Ashore missile defense facility in Deveselu is a step closer to becoming operational. Russian President Vladimir Putin has repeatedly condemned the facility, claiming the shield is aimed at upsetting the strategic balance of power in Europe. Lt. Cmdr. Joshua Lewis, the executive officer for the AEGIS Ashore Missile Defense System, said the advance team is setting up procedures and organizing workflow for the new facility.

But Russia sees the shields as a direct threat to its position in the world. Putin told Russian lawmakers in December that he views the missile shields as destabilizing. "ABM defence constitutes a threat not only to the security of Russia, but to the whole world, in view of the possible destabilization of the strategic balance of powers.

"There's real value in actually seeing the facility first hand and formulating how you want to do business based on first-hand experience," Lewis said. "We can also liaison with the base team to formulate procedures and memorandums and understanding between us." The Deveselu site is the first of two missile defense shields planned for Eastern Europe. The second site is scheduled to open in Poland in 2018. The US has said the missile shields are intended to thwart an intermediate range missile attack on Europe from a rogue state such as Iran.

CNNPC stock surged 44 % to 4.880 yuan per share in its market debut after raising $2.1 billion in the country's largest IPO since 2011. The first nuclear power company to go public on China's A-share market, CNNPC's listing comes at a time when the country's equity markets are flush with cash.

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The missile shield is located on an old, 200-acre Romanian air base and will be manned by sailors rotating through for six months at a time. It will be equipped with a SPY-1 radar system and a vertical-launch missile system armed with long-range SM-3 missiles. Much like the combat information center watch teams on surface combatants, the Aegis Ashore sites will be run round-the-clock by three crews. Each shift has an 11-person watch team, including rates that typically work in a ship's combat information center: fire control technicians, operations specialists, and cryptologic technicians (technical). One watch officer will oversee them.

Officials plan to deploy three of these specially trained watch teams for six months at a time. This will be an operational tour, similar to a ship's cruise, and won't come with permanent change-of-station orders or the possibility of bringing dependents to Romania. The deployment of long-range interceptors in Europe is part of the Obama administration's European phased adaptive approach to missile defense, announced in September 2009. The first phase involved forward deploying four destroyers to Rota, Spain, for rotating missile defense patrols. The destroyer Porter arrived in Rota in April, and Carney will deploy there later this 2015. They join the Ross and Donald Cook already in country.

Source: http://www.navytimes.com, 08 June 2015.

NUCLEAR ENERGY

CHINA

China National Nuclear Power Surges 44% in Market Debut

CNNPC stock surged 44 % to 4.880 yuan per share in its market debut after raising $2.1 billion in the country's largest IPO since 2011. The first nuclear power company to go public on China's A-share market, CNNPC's listing comes at a time

when the country's equity markets are flush with cash. China's stock market has more than doubled since the country's central bank lowered interest rates to help boost a flagging economy. The 44 % rise in the company's stock today is the maximum allowed on a first day trade.

The newly-listed company is a division of one of the country's two state nuclear reactor builders, CNNG, and controls about 40 per cent of the country's nuclear energy. Its listing comes as the China looks to ramp up its nuclear capacity, aiming for as much as 58 GW of nuclear power by the end of the decade. CNNPC says it will use funds from the float to build 10 new nuclear reactors, and as working capital. Recently, the company locked up 1.69 trillion yuan of funds in its IPO, the highest in four years.

Nuclear power supplied nearly 30 % of Japan's electricity before the closures. Opinion polls have shown consistent opposition to atomic energy since the disaster, even after electricity bills rose.

Source: http://www.theaustralian.com.au, 11 June 2015.

JAPAN

Japan Body Approves Plan for Nuclear to Generate 20-22 Pct of Power

A Japanese consultative committee on 1 June stuck to a controversial government plan for atomic energy to generate 20-22 percent of the country's electricity by 2030 despite public opposition following the Fukushima nuclear disaster. The government will open the plan to the public for comment for a month from 2 June and the proposals are expected to be formally approved by the trade ministry around mid-July, a ministry official said. They would then become government policy. With the renewable contribution set at 22-24 % of the electricity mix, critics say the government has not made good on a promise in 2014 to cut nuclear while expanding renewables.

All of Japan's reactors were shut after the meltdowns at the Fukushima Daiichi plant north of Tokyo in 2011, the world's worst nuclear disaster since Chernobyl in 1986. None has reopened although two reactors have recently got through safety checks, with the first restart earmarked for late July. Nuclear power supplied nearly 30 % of Japan's electricity before the closures. Opinion polls have shown consistent opposition to atomic energy since the disaster, even after electricity bills rose.

The panel also set a power generation target for LNG of 27 % and coal at 26 %. "I am against this draft," one of the members, Professor Takeo Kikkawa of the Tokyo University of Science, told the committee meeting. "The reason is that this does not match Japan's basic energy plan to reduce reliance on nuclear power as much as possible and maximise introduction of renewable energy." Kikkawa told Reuters after the meeting he wanted to see nuclear accounting for 15 % of the electricity mix with renewables at 30%. Japan should concentrate on building new nuclear plants because that would be the most effective in terms of safety, he said. The basic energy plan, set in April 2014, will be revised every three years and energy mix goals are subject to change if necessary, according to the draft. The shutdown of reactors has pushed coal and LNG consumption to record highs, causing power costs to soar and adding to Japan's carbon emissions.

Source: http://www.reuters.com, 01 June2015.

URANIUM PRODUCTION

AUSTRALIA

Uranium Miner Energy Resources Australia Pulls Plug on 3 Deeps Expansion

Uranium miner ERA will not proceed with its proposed 3 Deeps expansion project at the present time, the company has announced to the stock exchange. In a statement, the company said the uranium market has not improved like ERA had previously expected and there is uncertainty as to what prices would do in the future. The company also said the mine only had the authority to operate until 2021, and the economics of the project required certainty beyond that point.

Those conditions meant ERA would not proceed to a final feasibility study at this time, the statement said. ERA will continue to "process stockpiles and meet obligations to its customers", the statement said. The 3 Deeps expansion would have seen the Ranger Uranium Mine commence underground operations for the first time. Its current operations are open-cut. ERA said it had engaged its major shareholder, Rio Tinto, about funding to rehabilitate the mine site, which is completely ensconced by Kakadu National Park. The company previously said rehabilitation was funded under its current business plan, but if the 3 Deeps expansion did not go ahead it would require another source of funding to pay for all of the rehabilitation works.

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Conservationist Welcomes Project Shelving: The Australian Conservation Foundation's Dave Sweeney said the news was "significant and positive". "ERA has stopped the delusion and the dream, crunched the numbers, probably at Rio Tinto's insistence, and said this just does not stack up," he said. "We have long maintained that the Ranger 3 Deeps project is poorly considered, risky and dangerous, and for ERA to now have finally and formally announced that it won't be advancing this project at this time is good news.

"It's good news for Kakadu ... in this very contentious and long-running story of uranium mining in Australia's largest national park." Mr Sweeney said he felt ERA had finally accepted the advice of business people and conservation groups that the project was not viable. "The production window for the proposed underground mining operation at Ranger is too short, that the commodity price is too low, and that the fixed cost of the operation is too high," he said. "This operation has never made economic sense."He said uranium was particularly unviable after the nuclear disaster at the Fukushima nuclear plant in Japan.

Source: http://www.abc.net.au, 11 June 2015.

GENERAL

Research and Markets: Global Uranium Mining Industry 2015-2020

The 'Global Uranium Mining to 2020' report comprehensively covers global identified resources of uranium, reasonably assured resources by country, the historical and forecast data on global uranium mine production, planned and committed mine expansions and production by country, production by mining method and production by major mines. The report also includes demand drivers affecting the global uranium mining industry, profiles of major uranium producing companies and information on the global major active, exploration and development projects by region.

Global uranium mine production according to Timetric's global uranium report was 56,184 tonnes in 2014, down by 5.4% compared with 2013, with Kazakhstan being the leading producer, followed by Canada and Australia. The report provides information on the global uranium mining industry together with the key demand drivers affecting the industry. Further, it provides information about reserves, historic and forecast production and production by country, production by mining method and production by major mines, competitive landscape and major active, exploration and development projects.

Global uranium mine production according to Timetric's global uranium report was 56,184 tonnes in 2014, down by 5.4% compared with 2013, with Kazakhstan being the leading producer, followed by Canada and Australia.

Key Highlights:

* Global uranium mine (or metal content in the ore) production was 56,184t in 2014, down by 5.4% compared with 2013.
* The increase in global production in recent years is mainly due to an increase in output from Kazakhstan.

* With power generation being a significant end use for uranium, the Fukushima nuclear power plant accident has had an impact on long-term nuclear power policies in Germany, Belgium, France and Switzerland, switching in favor of capping and eventually phasing out nuclear power plants. However, there is demand for nuclear capacities from other parts of the world, and demand has a unique regional footprint....

Source: http://www.businesswire.com, 11 June 2015.

USA–TURKEY

Merger to Fast-Track Turkish Uranium Project

A US uranium processing plant could be shipped to Turkey to fast-track uranium production under a newly announced merger of Uranium Resources Inc with Australian uranium and exploration company Anatolia Energy, owner of the Temrezli uranium project. Anatolia and Uranium Resources have entered into a binding scheme implementation agreement under which Uranium Resources proposes to acquire all of Anatolia's issued and outstanding securities through the issue of new securities in Uranium Resources.

The two companies said in a statement that the expanded company created by the merger would have the potential for near-term production from Temrezli, which has measured and indicated resources of 11.3 million pounds U3O8 plus some 2 million pounds U3O8 of inferred resources. A pre-feasibility study completed earlier this 2015 revealed strong economics for the project, and Anatolia has taken the first steps in the permitting process with a view to production starting in 2016.

Uranium Resources controls extensive uranium mineral holdings in Texas and New Mexico, as well as licensed in situ leach processing facilities at Rosita and Kingsville Dome, both of which are currently on standby. The combination of Uranium Resources' in-house technical abilities and ISL operations, coupled with Anatolia's advanced project, provides a potential fast-track to uranium production, the companies said.

On completion of the merger, the companies say they will investigate the possibility of relocating the Rosita processing plant to Temrezli. This, they said, would greatly reduce the up-front capital costs of the Turkish project, where Anatolia had planned to construct a 1.2 million pounds U3O8 per year central processing plant. The companies said that up to $8 million could be saved by reusing the Rosita plant at Temrezli, while a further $3 million could be saved by making use of Uranium Resources' in-house design expertise. Initial production at Rosita commenced in 1990, continuing until July 1999 when it was suspended due to unfavorable market conditions. The 800,000 pounds U3O8 per year plant also operated briefly in 2008.

The companies said that up to $8 million could be saved by reusing the Rosita plant at Temrezli, while a further $3 million could be saved by making use of Uranium Resources' in-house design expertise.

Anatolia CEO Paul Cronin said the Rosita plant, which underwent major upgrades before going to be put on standby in 2008, would bring the added benefit of being designed and constructed with the ability to scale up production to accommodate potential future production from satellite operations. "The merger with Uranium Resources provides an excellent solution to Anatolia's current objectives to advance Temrezli into production as quickly and efficiently as possible, and brings with it the possibility of greatly reducing the upfront capital costs if we can successfully relocate and utilise Uranium Resources' Rosita ... as currently expected", he said.

The merger will require approval from shareholders, but major shareholders representing 25.6 % of Anatolia and 23.5% of Uranium Resources have already expressed their support. Current Anatolia shareholders are expected to own about 40.6% of the merged company, with current Uranium Resources shareholders owning 59.4%. It would remain headquartered in Colorado, USA with current Uranium Resources CEO Christopher Jones remaining as president and CEO of the company. The merged company would

be listed on the NASDAQ stock market but is also proposing a secondary listing on the Australian Securities Exchange. Subject to shareholder and regulatory approval, the transaction is expected to close by the end of September.

Source: http://www.world-nuclear-news.org, 04 June 2015.

In February, Egypt and Russia signed an MOU on the construction of a nuclear power plant in the North African country. Russian state nuclear corporation Rosatom and the Egyptian ministry of electricity and renewable energy "agreed to launch detailed discussions on the prospective project.

NUCLEAR COOPERATION

CHINA–EGYPT

China, Egypt Agree to Nuclear Cooperation

A MOU to cooperate in the construction of power reactors has been signed between CNNC and the Egyptian NPPA. The MOU was signed during a CNNC delegation's visit to Egypt between 21 and 23 May. The signing was witnessed by Egypt's first undersecretary of the ministry of electricity and renewable energy Hassan Mahmoud Hassanein. In a statement CNNC said the signing of the MOU marks a new phase in work to develop nuclear energy in Egypt and that the company has now become "one of the official partners for Egypt's nuclear power projects".

In February, Egypt and Russia signed an MOU on the construction of a nuclear power plant in the North African country. Russian state nuclear corporation Rosatom and the Egyptian ministry of electricity and renewable energy "agreed to launch detailed discussions on the prospective project," Rosatom said in a statement. Rosatom subsidiary Rusatom Overseas and the NPPA signed a project development agreement for a nuclear power plant with a desalination facility. The El-Dabaa site on Egypt's Mediterranean coast was selected for a nuclear plant in 1983, but this scheme was scrapped after the Chernobyl accident in Ukraine.

However, in 2006, the same site was named in plans to build a 1000 MWe reactor for electricity generation and water desalination by 2015, in a $1.5-$2 billion project that would be open to foreign participation. Early in 2010 the proposal had expanded to four plants by 2025, the first costing about $4 billion and being on line in 2019 or 2020. Plans were put on hold in 2011 until the political situation stabilised following the ousting of former president Hosni Mubarak.

Source: http://www.world-nuclear-news.org, 28 May 2015.

INDIA–BANGLADESH

India, Bangladesh to Enhance Nuclear Cooperation

India and Bangladesh have decided to enhance cooperation in Nuclear energy sector and expedite resolution of river water sharing issues, according to a Joint statement issued by the two countries at the end of Prime Minister Narendra Modis two-day historic visit to the neighbouring country. It was agreed that training of personnel in the nuclear energy sector would be an important of the cooperation.

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The Statement titled *Projonmo* or *Nai Disha* (New Direction) also said the two countries had decided to establish an annual India-Bangladesh Energy Dialogue to be led jointly by Secretary (Petroleum) of India and Secretary, Power Division of Bangladesh to undertake comprehensive energy sector cooperation including areas of Coal, Natural Gas, LNG, supply of petroleum products in the sub-region,

renewable energy, oil and gas pipelines etc.

...The joint communiqu also highlighted the power cooperation between the two countries. Mr Modi told Ms Hasina that India could a major partner in achieving this goal and many Indian corporates had the capacity to cooperate with Bangladesh in this endeavour. He requested Prime Minister Hasina for facilitating the entry of Indian companies in the power generation, transmission and distribution sector of Bangladesh.

Source: http://news.webindia123.com, 07 June 2015.

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RUSSIA–JORDAN

Russian Official: Jordanian-Russian Nuclear Cooperation is Moving Forward

An official at the Russian state-owned firm Rosatom said that Jordanian-Russian cooperation in constructing Jordan's first nuclear reactor is moving forward and serves the interest of both sides. In response to a question by Jordan News Agency, Petra on the sidelines of ATOMEXPO 2015, which is organized by Rosatom in Moscow, she added that experts from the firm and representatives of the Jordan AEC and the IAEA are continuing work on the various stages of the project.

Meanwhile, ATOMEXPO International Forum opened in Moscow 1 June with the participation of 1000 people from 40 countries. Senior Manager at ROSATOM Angelica Haperskaya said that participants and visitors of the expo are mostly from countries that have nuclear reactors or plan to establish them in cooperation with Russia. The purpose of the Forum is to provide the leaders of nuclear power industry and nuclear power engineering with an opportunity to publically define the place and role of nuclear generation in the XXI century energy balance, analyze the main challenges, issues and scenarios of development of the energy market worldwide.

Source: http://www.petra.gov.jo, 01 June 2015.

USA–SOUTH KOREA

Obama Approves Nuclear Cooperation Deal with S. Korea

US President Barack Obama approved a civilian nuclear energy cooperation deal with South Korea on 12 June, saying it will promote the "common defense and security." In April, the two countries initialed the revision to their 1974 nuclear cooperation pact after more than four years of negotiations to reconcile Seoul's demand for the right to reprocess spent nuclear fuel and enrich uranium with Washington's concerns about proliferation.

The new deal still bans Seoul from reprocessing and enrichment, but it opens the way for the Asian ally to begin research into a new technology for spent nuclear fuel recycling, known as "pyro processing," and to make low-level enriched uranium with US consent. "I have determined that the performance of the proposed agreement will promote, and will not constitute an unreasonable risk to, the common defense and security," Obama said in a memorandum for the secretary of state and the secretary of energy.

... South Korean President Park Geun-hye has already approved the agreement. The two countries should now formally sign the deal before it is sent to Congress for approval. No legislative approval is necessary in South Korea. The two countries had planned to hold a signing ceremony during Park's visit to Washington, but the plan fell through as she postponed the trip due to the massive outbreak of Middle East Respiratory Syndrome in South Korea. Once it is formally signed, Congress will review the agreement for 90 congressional days,

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which could take up to six months, and the pact will take effect if no opposition is raised during the review.

Source: http://www.koreaherald.com, 12 June 2015.

NUCLEAR PROLIFERATION

IRAN

Nuclear Talks Ignore Iran's Missiles at World's Peril

Three weeks before a deadline for a comprehensive nuclear deal with Iran, the failure to address the Islamic Republic's ballistic missile program in any agreement could be a dangerous omission, a panel of experts told US lawmakers 10 June. When Iran and the P5+1 group – the US, Britain, France, Russia, China and Germany - announced a "framework" understanding on which a final deal, due by June 30, would be based, the issue of Iran's missiles was not included.

David Cooper of the US Naval War College testified before the House Foreign Affairs sub-committee on the Middle East and North Africa, that the links between medium and long-range missiles and a nuclear payload are clear.

Yet Tehran, the experts pointed out, has the largest ballistic missile arsenal in the Middle East. David Cooper of the US Naval War College testified before the House Foreign Affairs sub-committee on the Middle East and North Africa, that the links between medium and long-range missiles and a nuclear payload are clear. "At this moment, Iran is the only country in the world that says it has no nuclear weapons ambitions and yet has fielded an intermediate-range ballistic missile," Cooper said.

Robert Joseph, senior scholar at the National Institute for Public Policy, underlined what's at stake if a deal that is flawed – as he sees it – goes forward. "If there is an agreement along the lines described by the White House and the Iranian leadership, I believe it will represent the single greatest strategic mistake in the national security area in the last 35 years," he said. Anthony Cordesman of the Center for Strategic and International Studies told the panel that Iranian medium- and long-range missiles are notoriously innaccurate. He said the Israelis have long viewed them not as a strategic weapon but one meant to spread mass terror.

But he and the other experts agreed that Iran's missile technology – developed with significant technical input from North Korea and Russia – is improving. Retired Army Lt. Gen. Michael Flynn (former director of the DIA) said he fears the consequences if the deal now on the table goes through. "Once sanctions are lifted, the genie is out of the bottle; we're going to see proliferation in the region because we've looked at this too narrowly," he said. Flynn testified that Saudi Arabia, Jordan, the United Arab Emirates, Kuwait and Egypt "are already talking to the Russians and the Chinese about developing nuclear capabilities in their countries."

The panel's chairwoman, Republican Rep. Ileana Ros-Lehtinen, opened the hearing by saying there are "many glaring omissions" in the possible deal that have caused many to characterize it as "weak and dangerous." Ros-Lehtinen said the fact that Iran continues to make advances on ICBMs - which are only used to carry nuclear weapons - belie the notion that Iran's program is for peaceful uses. "Perhaps the biggest failure of the negotiations was to limit it to just the nuclear profile" and not include Iran's continued progress on [its] ballistic missile program," she said.

Source: http://www.voanews.com, 10 June 2015

IRAN–NORTH KOREA

Iran's Cooperation with North Korea Includes Nuclear Warhead Technology

For years, the conventional wisdom has been that Iran and North Korea have long cooperated in missile technology, giving the perception of not so dangerous of an alliance. In yet another groundbreaking revelation, Iran's main opposition movement, the Mujahedin-e Khalq (MEK) provided

information that Iran and North Korea have been engaged in extensive exchange of information and visits by experts on nuclear weapons and nuclear warhead design, as recently as April 2015.

The MEK, based on information obtained by its network inside Iran, provided a detailed account of a visit to North Korea in 2013 by Tehran's top nuclear weapons experts headed by elusive Mohsen Fakhrizadeh, who was present during the last nuclear test conducted by North Korea. A seven-member North Korean delegation, comprised of experts in nuclear warhead design and various parts of ballistic missiles including guidance systems, spent the last week of April in Iran. This was the third such nuclear and missile team to visit Iran in 2015. The next delegation is scheduled to secretly arrive in Iran in June and will be comprised of nine experts, according to the same MEK sources.

A seven-member North Korean delegation, comprised of experts in nuclear warhead design and various parts of ballistic missiles including guidance systems, spent the last week of April in Iran. This was the third such nuclear and missile team to visit Iran in 2015. The next delegation is scheduled to secretly arrive in Iran in June and will be comprised of nine experts.

That Tehran continues to closely engage with North Korea, a country that cheated its way into making a nuclear weapon, all the while pledging that it would not do so, should be an additional cause for alarm. It should be a red flag for the P5+1 countries as they continue their negotiations with Iran in Vienna and Geneva with only days left before the June 30 deadline to sign an agreement. The Iran-North Korea nuclear cooperation is in sharp contrast to what the Iranian regime leaders are telling the world. It also explains why the Supreme Leader Ali Khamenei rejects IAEA inspections of military sites, snap inspection of all sites, and interviews with nuclear scientists.

Tehran has so far managed to largely push its missile program out of the nuclear agreement requirements, and with it its extensive nuclear cooperation with North Korea—something that was kept under the radar for years. The North Korean nuclear experts who traveled to Iran in April stayed in a secret guesthouse, a cordoned-off eight-story building, near a Hemmat Industrial Group site in the Khojir area, northeast of Tehran. Named "Imam Khomeini Complex," and also known as 2000 units, the site is controlled by the MoD.

The Korean delegation's needs were met by Center for Research and Design of New Aerospace Technology, one of seven sections of the SPND. Dr. Aref Bali Lashak, who personally dealt with the Korean delegation, heads this section. The North Korean delegation dealt with this section of SPND whose responsibility is electronics area of research and manufacturing interior parts of nuclear warhead. The visit's arrangements were made by the Directorate of Coordination of the Iranian MoD, headed by Brigadier General Nassorllah Ezati and the Directorate of Inspections of the MoD headed by IRGC Brigadier General Alireza Tamizi.

While there were earlier reports about Fakhrizadeh's presence during the North Korean's 2013 nuclear test, a two-year investigation by the Iranian opposition shows that Fakhrizadeh had gone to North Korea for the nuclear test through China under the alias "Dr. Hassan Mohseni.

While there were earlier reports about Fakhrizadeh's presence during the North Korean's 2013 nuclear test, a two-year investigation by the Iranian opposition shows that Fakhrizadeh had gone to North Korea for the nuclear test through China under the alias "Dr. Hassan Mohseni." Fakhrizadeh, the head of SPND and the key figure in activities concerning the military dimensions of the regime's nuclear program, is a Brigadier General of the IRGC, with whom the IAEA has repeatedly requested interviews, but to no avail. The MEK first exposed the formation of SPND in July 2011 and

the State Department placed it on its sanctions list in August 2014.

According to the Iranian opposition reports, during the North Korean visit, Fakhrizadeh, accompanied by two other SPND nuclear experts, stayed in Hotel Koryo in Pyongyang and spent only two hours at the Iranian regime's embassy. To keep his visit a secret, Mansour Chavoshi, Tehran's Ambassador to Pyongyang, personally welcomed Fakhrizadeh and facilitated his communications and exchanges with North Korean officials. The stunning detailed information provided by the MEK is further indication that the drive to acquire nuclear weapons remains at the core of the Iranian regime's program as nuclear negotiations continue.

North Korea's nefarious connection once again proves that after three decades of concealment and deception, adding six or nine months to the nuclear breakout time as a result of the P5+1 negotiations will not lead to a lasting solution. Washington needs to rethink its strategy in dealing with the Iranian regime; a strategy that would eliminate, not delay, the regime's ability to build the bomb, because Tehran consistently shows that it must not be trusted. Any nuclear agreement with Tehran, which would leave open a pathway to the nuclear bomb, must be rejected. To that end, Congress might have its biggest role to play.

Source: http://thehill.com, 03 June 2015.

PAKISTAN

Pakistan Denies Saudi Nuclear Sale

Foreign Secretary Aizaz Ahmed Chaudhry on 4 June hotly denied Pakistan could sell Saudi Arabia an "off-the-shelf" nuclear weapon, after days of high-level talks in Washington. After meetings at the White House, Pentagon and State Department, Aizaz Chaudhry described the suggestions Pakistan could sell a weapon as "unfounded, baseless and untrue." "Pakistan´s nuclear program has nothing to do with any other country," he told reporters. "This is a deterrence that we develop in response to a threat perception that we have from our east. That´s it." "Pakistan is not talking to Saudi Arabia on nuclear issues, period."

Source: http://www.geo.tv/article-187035-Aizaz-Chaudhry-denies-Saudi-nuclear-sale, 05 June 2015.

NUCLEAR NON-PROLIFERATION

INDIA

India Applies for Membership of MTCR that Controls Missile & Space Tech

Abandoning years of hostility, India has formally applied for the membership of MTCR, a West-dominated elite club of 34 countries that controls trade in missile and space technology. The application may happen at MTCR's plenary due in September-October. Indian diplomats feel the country's chances of getting the membership are bright, thanks to US' assurances.

Applying for MTCR membership is an important diplomatic step because this brings India closer to technology control regimes that the country had fought and worked around for decades to build its missile and space programmes.

India's space and missile programmes will gain from MTCR membership since it will get access to world-class technology. MTCR will also allow it to export its own technology to countries that comply with the regime. Applying for MTCR membership is an important diplomatic step because this brings India closer to technology control regimes that the country had fought and worked around for decades to build its missile and space programmes. Senior officials familiar with the matter told ET New Delhi's aim is to have the membership considered at MTCR's next plenary in September-October. The current MTCR chair, Ronald Waess of Norway, could visit India in July as efforts are expected to pick up pace. The decision to include India as a member has to be through consensus and India's bet is on Washington to pilot the process. Several member countries have in the past few years welcomed India's desire to join the regime.

Source: http://economictimes.indiatimes.com, 11 June 2014.

NUCLEAR TERRORISM

ISRAEL

Israel Built, Exploded 'Dirty Bomb' in Nuclear Test: Report

Israel built and exploded so-called "dirty bombs," explosives laced with nuclear material, to examine how such explosions would affect the country if it were to be attacked by the crude radioactive weapons, the *Haaretz* daily newspaper reported on 8 June. Israeli defense officials and scientists refused to comment on the report when reached by *The Associated Press*. However, Israel has what is widely considered to be an extensive nuclear weapons program that it has never declared. The *Haaretz* report, which included photographs, said the project conducted 20 detonations with explosives laced with a radioactive substance. Mini-drones measured radiation levels and sensors logged the force of the explosions, Haaretz reported.

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Researchers quoted in the *Haaretz* report said the Israeli tests were for defensive purposes only. They said high radiation was found at the center of blasts while small particles carried by wind didn't pose serious danger, except for the psychological effect of such an attack. The newspaper said the project, code-named "Green Field" and conducted by staff from Israel's nuclear reactor in the southern town of Dimona, ended in 2014 after four years of tests. Most were conducted in Israel's Negev Desert and one in a closed facility, it said.

Another experiment, called "Red House," tested the consequences of a radiological substance left in a crowded area without being detonated, the newspaper said. The article said Israeli officials put a radioactive material mixed with water in the ventilation system of a building that simulated a shopping mall. The report said scientists found such an attack would be ineffective as a majority of the radiation remains in air conditioning filters. Results of the experiments were presented at unspecified scientific forums, it said. The international community long has feared that extremists like the Islamic State group or al-Qaida could make such weapons to attack civilian areas, potentially rendering them inhospitable.

Source: http://www.hindustantimes.com, 09 June 2015.

MIDDLE EAST

ISIS has Enough Radioactive Material to Make Dirty Bomb

ISIS has allegedly obtained enough nuclear material to build a deadly "dirty" bomb, a shocking new report claims. Militants in the bloodthirsty jihadist group have purportedly stolen radioactive chemicals from government labs across Iraq and Syria and are now trying to assemble explosive devices with them, The Independent, a British newspaper, reported 10 June, citing Australian intelligence reports and ISIS propaganda literature. In the latest issue of Dabiq, ISIS' perverted publicity magazine, members of the group allegedly bragged they could soon have the capability to build or purchase nuclear weapons, which could, in turn, be used to build "dirty" bombs — devices that use radiological or chemical materials along with conventional explosives.

Previously, ISIS members allegedly had said in the magazine, the group could try to buy a nuclear weapon from Pakistan. According to The Independent, Australian intelligence officials were so concerned about the group's stated intentions they called for a meeting of the "Australia Group," an international forum dedicated to stopping the proliferation of chemical weapons, to address the issue.

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"ISIS is likely to have amongst its tens of thousands of recruits the technical expertise necessary to

further refine precursor materials and build chemical weapons," Julie Bishop, Australia's Minister of Foreign Affairs, said at the meeting, according to *The Independent*, citing intelligence reports. The renewed concerns over a potential radioactive weapon in the hands of ISIS comes nearly a year after Iraqi officials warned the UN the group had obtained materials that could "be used in manufacturing weapons of mass destruction." In July 2014, Iraqi UN Ambassador Mohammed Ali Alhakim disclosed to UN Secretary General Ban Ki-Moon that ISIS had ransacked labs at a university in Mosul and stolen uranium and more than 2,000 sarin-filled rockets.

Source: http://www.nydailynews.com, 10 June 2015.

USA

Buried in Surveillance Law, US to Ratify Nuclear Terror Treaties

Despite weeks of high-profile debate around the USA Freedom Act, which renewed Section 215 of the Patriot Act and by extension renewed NSA surveillance of Americans, it still managed to have little-discussed clauses totally unrelated to surveillance buried in it. Among those clauses was 15 paragraphs of changes to US legal code related to nuclear terrorism, which will finally allow the US to finalize its ratification of the Convention on Physical Protection of Nuclear Materials and the Convention on the Suppression of Acts of Nuclear Terrorism.

The two treaties are a decade old, and were signed by President Bush, and ratified by the Senate near the end of his second term. There were questions surrounding existing US law, however, and not explicitly mentioning certain activities in the treaty. The House had passed legislation trying to bring US law in line with the treaty several times, but the Senate was never able to pass them, with efforts by some Senators to take the legislation farther with calls to criminalize speech in support of nuclear terrorism and calls for wholesale surveillance to prevent it stalling the efforts. Those terms, pushed by Sen. Chuck Grassley (R – IA), were not in the final USA Freedom Act, but Grassley vowed to continue trying to get them passed.

Source: http://news.antiwar.com, 07 June 2015.

NUCLEAR SAFETY

FRANCE

Faulty Valves in New-Generation EPR Nuclear Reactor Pose Meltdown Risk, Inspectors Warn

Flamanville third-generation EPR nuclear reactor – the same model Britain plans to use for two new plants at Hinkley Point – has multiple faults in crucial safety valves, inspectors warn. Nuclear safety inspectors have found crucial faults in the cooling system of France's flagship new-generation nuclear power plant on the Channel coast, exposing it to the risk of meltdown. The third-generation European Pressurised Reactor currently under construction in Flamanville is the same model that Britain plans to use for two new plants at Hinkley Point in Somerset. State-controlled nuclear giant Areva is responsible for the design and construction.

France's nuclear safety watchdog found "multiple" malfunctioning valves in the Flamanville EPR that could cause its meltdown, in a similar scenario to the 1979 Three Mile Island nuclear accident in the US. The inspectors listed the faults in a damning presentation obtained by Mediapart, the investigative French website. This is the latest setback for what is supposed to be France's atomic energy showcase abroad, following the revelation last May that its steel reactor vessel has "very serious anomalies" that raise the risk of it cracking. The vessel houses the plant's nuclear fuel and confines its radioactivity.

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The findings were listed in a presentation by the IRSN to France's top nuclear safety regulator. The watchdog reportedly cited "multiple failure modes" that could have "grave consequences" on the safety relief valves, which play a key role in regulating pressure in the reactor. Owned by state-controlled French utilities giant EDF, Flamanville lies close to the British Channel Islands and about 150 miles from the southern English coast.

Designed to be the safest reactors in the world and among the most energy-efficient, the €9 billion EPR has suffered huge delays in models under construction in France, Finland and China. It is now due to enter service in 2017, five years later than originally planned. In April, it was revealed that excessive amounts of carbon in the steel in the top and bottom of the reactor's vessel, which forms a shell around it, could cause cracks which could prove disastrous, as the vessel cannot be replaced during the lifespan of the reactor. The faulty safety relief valves are situated on the pressuriser, which regulates the high pressure within the primary circuit where water cools the nuclear fuel by releasing steam when necessary.

The failure of a pilot-operated relief valve in the primary circuit was a key factor in the partial meltdown of a reactor at the Three Mile Island plant in the US in March 1979, and which led to the halting of America's civil nuclear power programme. In that accident, nuclear reactor coolant escaped through a valve that was stuck open, sending the reactor into partial meltdown. At Flamanville, IRSN noted "opening" and "closing" failures concerning the pilots that operate the safety valves and "risks of fluid leaks" of the reactor coolant. It warned that the multiple faults could have "grave consequences". On 09 June, IRSN confirmed tests conducted by EDF showed "difficulties in opening and shutting valves". But it played down the gravity of the findings, saying: "For now, one cannot conclude it is serious as we haven't fully judged the quality "of the valves" – a view it will announce this summer.

... Recently, the French government announced Areva NP, the nuclear reactor arm of state-controlled Areva, is to be sold to EDF, its former client which also operates all of France's 58 nuclear reactors. The move followed Areva's announcement in March that it had racked up record losses in 2014 of €4.8 billion. EDF is in the final phase of negotiations with the British government on building the two Hinkley plants in Britain, which in February it said would be "possible in the next few months".

Source: http://www.telegraph.co.uk, 09 June 2015.

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INDIA

Government to Contribute Rs 600 Crore to Nuclear Pool

The government would contribute Rs 600 crore to the proposed Rs 1,500-crore nuclear insurance pool that will be launched by AEC chairman R K Sinha on June 12, a senior official of GIC Re said. "We have commitment from the government for Rs 600 crore or the Rs 1,500-crore nuclear insurance pool. Already four state-owned non-life general insurers have committed Rs 450 crore while GIC Re alone is chipping in with Rs 300 crore, and the remaining Rs 150 crore is being contributed by seven private players," a senior GIC Re official told PTI requesting anonymity. However, it could not be confirmed from the Finance Ministry. The pool is likely to cover the hot zones of all the 10 nuclear power plants in the country which are run by NPC.

Some of the major private sector general insurers which have committed to contribute for the pool include ICICI Lombard, Tata AIG and Reliance General. ...Tata AIG General Insurance chief executive KK Mishra told PTI. Of late some global reinsurers have also evinced their interest in contributing to the pool, said the official but refused to divulge more details. Earlier they were not ready to chip citing the laws don't permit them to conduct inspection of plants to provide reinsurance covers. However, the scenario changed after the visit of US President Barrack Obama in January, he added. The cold zones of all the nuclear power plants in the country are already covered. However, it is for the first time that the hot zone of these plants will also be insured through the proposed pool. The largest life insurer LIC is also likely to participate in the

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catastrophe bond which is likely to be issued by GIC Re for the pool. ...

Source: http://www.moneycontrol.com, 11 June 2015.

NUCLEAR WASTE MANAGEMENT

SOUTH KOREA

S.Korea Needs New Facility for Spent Nuclear Fuel

South Korea should build a new temporary facility to store spent nuclear fuel from 2030 and consider permanent underground storage from the middle of the century, a government advisory body said on 11 June. South Korea is the world's fifth-biggest user of nuclear power, but has yet to find a permanent solution for its spent nuclear fuel, with temporary sites at individual nuclear plants likely to start to fill up from 2019. The PEC, an independent body that advises the government on nuclear issues, said Seoul should select a domestic site by 2020 for an underground laboratory that could conduct safety checks and provide temporary storage. The facility could become the site for a long-term storage facility, which would bury the country's nuclear waste 500 metres underground and start operations from 2051. The commission's recommendations, which are subject to parliamentary hearings, will be given to the country's energy minister. Public trust in nuclear energy in South Korea has been undermined by a 2012 scandal over the supply of reactor parts with fake security certificates and the 2011 Fukushima crisis in Japan. Korea Hydro and Nuclear Power Co Ltd, owned by state-run utility Korea Electric Power Corp, operates 23 nuclear reactors supplying a third of the country's electricity. It plans to build another 13 reactors by 2029. The reactors currently produce around 750 tonnes of spent fuel a year. South Korea is unable to reprocess spent fuel under a civil nuclear pact with the United States, although an agreement with Washington in April opened the way for easier movement of spent fuel to a third country for disposal. Seoul last December authorised the start-up of an underground storage facility for low- and medium-level radioactive waste such as contaminated clothing and tools.

Source: http://news.asiaone.com, 11 June 2015.

Centre for Air Power Studies

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

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