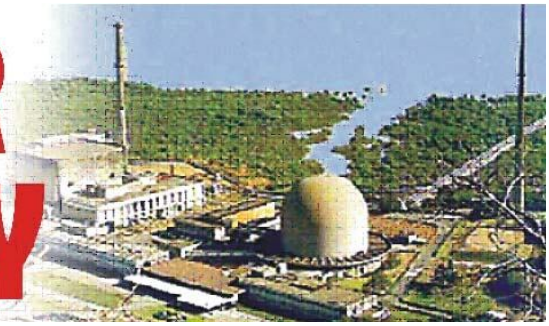
NUCLEAR SECURITY



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

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OPINION- Manpreet Sethi

Pakistan's Version of Sea-based Deterrence: Inherent Dangers

In April 2011, Pakistan tested a 60 km very short-range ballistic missile called Nasr and claimed it to be nuclear capable. This has since been publicised as the tactical nuclear weapon (TNW) meant to deter India from mounting a conventional military response to any act of terrorism found to be sponsored from Pakistan. By doing so, Rawalpindi has signalled that its nuclear threshold is so low that any military action by India would compel it to escalate straight to the nuclear level since it does not have the capacity to fight a conventional war. The message, therefore, to India is to exercise caution even in the face of provocation since the escalation could quickly spin out of control. This is indeed a well thought out move by Pakistan to reclaim the space that India claims exists for it to undertake punitive action against a Pakistan-abetted proxy war.

However, if Pakistan is to make its TNW a credible component of its first use nuclear strategy, then it must build and deploy them in large enough numbers to have a substantial impact on the battlefield. Whether Pakistan has the fissile material and the technological capacity to do that is immaterial. Even if it does not have this today, it could well acquire it over time since there is no non-proliferation instrument that prohibits it from doing so. But the essential point of concern, not just to India, but to the larger international community as well, should be the existential risks that Pakistan is spreading through its TNW. For these weapons to be militarily meaningful, pre-delegation of their command and control is inevi table. This will bring in issues related to their safety and security. The chances of these weapons being seized by the proliferating and increasinglyanti-establishment terrorist organisations are being ignored by Pakistan at its own peril.

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Even more alarming are reports that have recently appeared that Pakistan is now moving out into the sea with its short-range nuclear-tipped ballistic and cruise missiles. Late last month a report in The Washington Post claimed that Pakistan was getting ready to operationalise its sea-based deterrent. Considering that China embarked on this path more than three decades ago and is yet to carry out the first patrol of a nuclear-powered submarine armed with nuclear capable missiles, and that India too is yet to send its first SSBN for sea trials, leave alone operational patrols, Pakistan through its trademark jugaad strategy seems to have beaten both with its own version of sea-based deterrence.

Yet again, Pakistan has displayed nuclear brinkmanship. The message once again to India, and to the Western South Asia watchers, is that the stakes are going to be too high in case of any break-out of hostilities. It assumes that India would be deterred from all action in view of the higher cost that it would suffer from any escalation. This, however, may prove to be a very costly assumption for Pakistan since the current mood in India does not appear to be one to silently absorb a terrorist provocation.

It may be recalled that Pakistan had inaugurated its naval SFC (it has one for each one of the wings of the armed forces) in 2012. At the time, it could claim no naval assets in the strategic role. Many in the West dismissed this development as inconsequential since Pakistan's indigenous military capability was perceived as being unable of building and operationalising an SSBN over the next two decades. But, the country has shown that it could achieve 'sea-based deterrence' without having to take the beaten path. Instead of waiting for its SSBNs to be acquired/ developed, Pakistan has chosen to equip its surface vessels and diesel electric-powered submarines with nuclear-armed ballistic and cruise missiles.

The possibility of a Pakistani warship that is armed with nuclear-tipped missiles falling into jihadi hands is a threat of a new kind with very alarming dimensions. By spreading its strategic assets on relatively vulnerable ships at sea, Pakistan is repeating the mistake it makes with TNWs on land.

The intention of doing so is to carry the aspect of TNW deterrence out to sea in order to further reduce India's manoeuvrability on the conventional plane. Yet again, Pakistan has displayed nuclear brinkmanship. The message once again to India, and to the Western South Asia watchers, is that the stakes are going to be too high in case of any break-out of hostilities. It assumes that India would be deterred from all action in view of the higher cost that it would suffer from any escalation. This, however, may prove to be a very costly assumption for Pakistan since the current mood in India does not appear to be one to silently absorb a terrorist provocation. Meanwhile, the move to deploy nuclear-capable missiles on vessels that are not particularly survivable is an extremely destabilising act that leaves itself dangerously open to inadvertent escalation. An encounter of the surface or sub-surface assets of the two countries, which is not unusual, could result in a situation that quickly spins out of control.

Even scarier are scenarios regarding the security of the nuclear assets at sea. Only last month there was a "near successful hijacking" of a Pakistani missile frigate, PNS Aslat, by al Qaeda with the intention of attacking Indian warships. The possibility of a Pakistani warship that is armed with nuclear-tipped missiles falling into jihadi hands is a threat of a new kind with very alarming dimensions. By spreading its strategic assets on relatively vulnerable ships at sea, Pakistan is repeating the mistake it makes with TNWs on land. The dangers of their safety and security are being multiplied manifold. Unfortunately, Pakistan appears blind to the dangers it is creating for itself in the process.

The latest buzzword in Pakistani nuclear strategy is "full spectrum deterrence against all forms of aggression." The deployment of nuclear weapons on surface ships and submarines is being touted as acquisition of second strike capability. But, a second strike capability comes from delivery systems that are survivable because they are exceptionally mobile, hidden or stealthy to escape a first strike and mount a retaliatory strike. Pakistan is claiming second strike capability by distributing its nuclear assets on visible, traceable, dual-use platforms that brings in an ambiguity that could trigger mistaken, unauthorised and inadvertent escalation. This version of sea-based deterrence is certainly not conducive to regional or international stability.

Source: http://www.ipcs.org/, 20 October 2014.

OPINION- Sheel Kant Sharma

India's Nuclear Capable Cruise Missile: The Nirbhay Test

India's test of the nuclear capable cruise missile Nirbhay last week was immensely significant in two ways. First, it marked the culmination of DRDO's efforts of not only the past decade but also the ambitions of its heads. It was in 1987 that the then DRDO Chief Arunachalam was reported to have said that he was launching a study towards making a cruise missile like the then famous Tomahawk. It was in 1987 that the then Soviet Union had agreed with the US on the historic INF Treaty; eliminating, inter alia, the whole class of medium range missiles including the nuclear capable ground launched cruise missiles of range 500-5000 km.

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The INF treaty then was the high point of interest for disarmament and armament aficionados going all the way up to then PM Rajiv Gandhi and therefore it was smart to want to study how the Tomahawk came into being. Even so, 37 years is a rather long time. However, given the enormous constraints and challenges under which the DRDO works in India, the successful test is certainly "better late than never." This is especially so since China savvy Pakistanis have already tested the Babur missile several times and like to brandish it to silence any tough talk by India about their transgressions across the border or trans-border terror outfits functioning from Pakistani soil.

Second, a cruise missile like Nirbhay has two main components, namely, the rocket launching it into space and the propulsion system that kicks in after the missile separates, brings out its wings, and flies like an aircraft. The second component has been advanced in several stages from the original cruise missile that the Germans toyed with almost seven decades ago during World War II. Its latest version uses supersonic propulsion, not subsonic, and the scramjet engine for that purpose is also in its second, if not third, decade, ever since the Russians tested a cruise missile with supersonic speeds around 1994. The Indian technology elite must come up to the table to be counted above the subcontinental hyphenation or de-hyphenation with lies, terror and purloined technology. That India still tests an indigenous cruise missile with turbofan engine and can claim all parameters working to copybook precision is more on the side of contentment than resolve to really make it to the big league. If the Maruti 800 of 1980s vintage is surpassed today by much better Indian cars why should India remain satisfied with claiming success about a strategic system that belongs well in the last century?

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As regards encouragement to Indian scientists and engineers a comparison with the subcontinental rival may be instructive: the maker of the Pakistani bomb had to suffer only the optics of incarceration by a military regime despite serious external allegations and pressure from donors and allies, whereas a top DRDO scientist in democratic India has to suffer post-retirement for due diligence demanded by compulsions of jurisprudence in regard to dismissal of a lower-echelon employee; unconnected with acquisition of cutting edge technologies or state of the art missiles.

The problem that the defence institutions face in India today must not be suppressed by patriotic pride about the accomplishment - which is justified at all times - but must be addressed head on. Why is India not able to make the engine fly the state-of the-art aircraft? The Light Combat Aircraft is a project going apace with DRDO but with an imported engine with attendant restrictions. The Brahmos missile is supersonic but its range is MTCR compliant under 300 km and its engine is Russian. Former President Kalam is on record talking about the hypersonic missiles in his time as DRDO head as he propounded a 2020 vision. That was at a time when India had just emerged post 1998, shattering global misperceptions about its inherent strength and external powers' erroneous complacence had to languish in the past decade plus with sub-critical progress on the technology front even when the only superpower recognised Indian prowess and appeared well disposed to see India's rise, particularly in the technology arena.

The pace of the global march of advanced technology is far too quick for our establishment's glacial responses and capricious working environment. Just let us look at the present controversy between the US and Russia about the latter's alleged violation of the INF Treaty by testing advanced cruise missiles supposedly proscribed by the Treaty, and the Russian counter-allegation about the US testing and deployment of systems covered by the Treaty's remit. Regardless of how Moscow and Washington settle this issue or fail to do so, the current reports have a cold war ring about them, are becoming voluminous, and show the sheer sweep of new technologies that are in the works.

The world is at the cusp of a veritable new age of weapon systems for long and short range strikes, with or without nuclear weapons. These technologies are as usual dual purpose and subject to controls - but such controls were also in vogue twenty years ago when, for instance, the Chinese weapon systems were still of much older vintage and were struggling to come of age. Nonetheless, the hype about China, then as now, would remain hard to fathom - then about its impending irresistible rise and now about its having arrived with real strength and considerable clout over today's technology. So, the lesson is to plan for at least two decades hence, provide the scientists clear policy guidance, required support and protection from systemic infirmities, and an atmosphere for perseverance and striving.

Just in case this emphasis is mistaken for trite arms race enthusiasm, it must be stated that the arms race is in any case already thrust upon India, either from behind or from the front by its colluding neighbours. An action like the testing of an older missile system like Nirbhay too might bring the moral high priests against it and it would not be a surprise if old hat clamour surfaces about destabilisation in South Asia. But in the end it is the prowess that is recognised and cutting edge ability that is respected. DRDO has miles to go before it can have a justified - and overdue - boast in that regard.

Source: http://www.ipcs.org/, 22 October 2014.

OPINION- Hina Pandey

In-Between the PrepComs & RevCons: Expectations from the Upcoming NPT RevCon 2015

In only a few months from now, the NPT will hold its fourth review conference (RevCon) since its indefinite extension in 1995. The last RevCon's (2010) final document had concluded with a promising set of recommendations on non-proliferation and disarmament. These included reaffirmations on actualizing CTBT's entry into

force, promotion of NPT's universal adherence, and other measures to promote nuclear non-proliferation, '…without hampering the peaceful uses by the NPT members… . It also reiterated the NWS commitment to not directly or indirectly transfer to any recipient whatsoever nuclear weapons…". IAEA once again, was reiterated as the competent authority for verification and assurances of nuclear non-proliferation, and hence obligations under IAEA safeguards, including the universalization of the Additional Protocol was referred to as significant in preventing the diversion of the dual use technology.

The recent three continuous PrepComs from 2011-2014 have deliberated upon a number of issues. During the 2011 PrepCom, P-5 planned to work on the glossary of definitions relating to nuclear terms through the creation of a working group. China took the lead on this. The Conference also raised the issue of IAEA's additional protocol. The follow up in 2012 Prepcom aimed at adopting a provisional agenda by adopting a final report and recommendation for the upcoming RevCon in 2015.

Before the 2015 RevCon, a deeper understanding on current proliferation problems must be achieved. The past three RevCons and PrepComs have gathered enough follow up tasks on their agenda that demand urgent attention. Hence to prevent NPT-2015 from being doomed, it is necessary that a roadmap to address a number of issues must be charted. The recent three continuous PrepComs from 2011-2014 have deliberated upon a number of issues. During the 2011 PrepCom, P-5 planned to work on the glossary of definitions relating to nuclear terms through the creation of a working group. China took the lead on this. The Conference also raised the issue of IAEA's additional protocol. The follow up in 2012 Prepcom aimed at adopting a provisional agenda by adopting a final report and recommendation for the upcoming RevCon in 2015.

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Three significant areas of concern were highlighted in 2012 — nuclear disarmament, peaceful uses of nuclear energy and the goal of nuclear weapons free zone in the Mideast. The 2012 PrepCom also vehemently opposed DPRK's ballistic missile testing and a general consensus prevailed on prevention of the DPRK from acquiring nuclear weapons. While most state parties remained supportive of the NWFZ in the Middle East in 2012, one year later due to the lack of progress, Egypt boycotted the 2013 PrepCom in order to express its displeasure. Newer approaches to disarmament were added in the 2013 PrepCom. As many as 80 countries, including the Vienna group of 10, supported South Africa's call on the humanitarian impact of nuclear weapons that emphasized an approach to negate the indiscriminate, unacceptable harm caused by nuclear weapons to socio-economic development.

Participation of the civil society in the official delegate meeting was also witnessed in the 2013 PrepCom. Many state parties including Japan affirmed the significant role government and civil societies partnership can play in promoting the disarmament and non-proliferation education. The idea of contribution from the civil society was received positively by the US, Ireland, Germany and Netherlands. The 2013 PrepCom revealed the US, Russia, China, Japan's preference for a step by step approach to disarmament. However the continuous weapons modernization programmes, and the stalemate in FMCT reflect unfulfilled disarmament obligations. While the New START is a step towards the objective of disarmament

by the most nuclear loaded P-5, it is also inadequate as it allows modernization and still provides scope for undeployed strategic or tactical nuclear weapons. This hinders a universal and unconditional progress of disarmament.

The final NPT PrepCom concluded in May 2014. It did not reach a consensus on final recommendations but released a working paper of sorts. The working paper was prepared by the Ambassador Enrique Roman-Morey of Peru, highlights of which included previous year's PrepComs's rhetoric on the Article-VI of the NPT. The recommendations mentioned in the working paper would be conveyed and would form significant deliberations in the NPT 2015 RevCon. The agenda for the NPT-2015 RevCon is almost set. Based on the last three sessions of the PrepComs and the recent evolving developments one can anticipate a repeat of the trend. The disarmament debate would likely remain tied to vertical non-proliferation commitments by the P-5 just like previous years. The progress of Iran's nuclear deal and resumption of the North Korean talks would add greatly to 2015-RevCon's final document since the new deadline (November 2014) for the Iran deal has already been set. Recently a senior North-Korean envoy called for the resumption of the nuclear talks.

Specific addition of issues such as the proliferation of missiles especially cruise missiles can be specifically dealt with. RevCon 2015 must address the issue of the failing of the INF treaty as this would directly impact the Article-VI commitments of the NWS. Since effective implementation of the IAEA safeguards was reiterated in the PrepComs, pressure on Pakistan towards the negotiation of such an agreement with IAEA could be made. It must be reckoned that recently the IAEA also concluded its 58th General Conference that successfully passed the safeguard resolution. Hence, such an agreement stands justified in the light of Pakistan's current quest of nuclear energy cooperation with China.

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The mood of the NPT RevCon 2015 has already been decided by recent developments. One such development also includes the lack of progress on the nuclear weapons free zone in the Middle East that had been in limbo for four years now. The clock to RevCon 2015 is already ticking and previous commitments especially with regard to finalizing of the Iranian deal and nuclear weapons free zone in the Middle East have not been met. On an optimistic note other than few issues relating to the peaceful uses of nuclear energy and civil society's engagement with the government on promoting disarmament, concrete gains may not be expected out of the upcoming RevCon.

Source: http://capsindia.org/, 12 October 2014.

OPINION- Tyler Cullis

Congressional Hawks Weaken an Iran Nuclear Deal

Late last November 2013 , when the US, its P5+1 partners, and Iran agreed to curbs on Iran's nuclear program in exchange for limited sanctions relief, Congress responded with draft legislation imposing new sanctions. This threatened to spoil the first break in the decade-old nuclear dispute with Iran and return the parties to the path of confrontation. It was only after significant White House outreach on Capitol Hill that the bill was defeated and negotiations allowed to proceed. With a few weeks to go before the November 24

deadline in the nuclear talks, President Barack Obama is once again facing an invented crisis that threatens to derail negotiations. This time, though, it's not about protecting the talks. It's about securing a final nuclear deal with Iran.

Recent reports indicated the unremarkable fact that the White House intended to exercise its prerogatives and do without an up-or-down vote in Congress on a nuclear deal. The news came as no surprise to members of Congress, who had been briefed that an Iran nuclear deal would not be dealt with as a "treaty" and would thus not require a Senate vote. Nonetheless, congressional hawks scoured to the scene, jumping at the chance to fabricate a crisis anew…Republican Rep. Ileana Ros-Lehtinen of Florida sent a letter to President Obama claiming Congress will not allow him to unravel the sanctions architecture that members have so dedicatedly put in place. Should the President proceed to act unilaterally, the letter warns, Congress will undo whatever sanctions waivers the president issues and will expand existing sanctions on Iran.

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If Ros-Lehtinen's grievance sounds reasonable, it's not. Being the lead sponsor of the Iran Threat Reduction Act — a major piece of sanctions legislation — Ros-Lehtinen is responsible for giving the President the power to suspend sanctions. It was her pen that blessed the White House with a power she now decries. Buyer's remorse is not a credible excuse, either. On successive occasions, Congress made sure the president was well-equipped to suspend sanctions should a nuclear deal ever emerge from negotiations. Significantly, Congress has never passed a single piece of sanctions legislation on Iran that did not grant the President the power to suspend it.

The reason is clear: Suspending but not lifting the sanctions gives the White House the time to test Iran's compliance with the terms of a nuclear deal and to instill confidence in Iran's intentions before repeal. Should Iran fail to adhere to its nuclear-related obligations, the president can quickly reassert sanctions pressure and force Iran into compliance. This is not just the policy; this is the right policy.

Yet, Congressional hawks care little about the policy. What they care about is foiling a nuclear deal. Thinly-disguised, their intentions should by now be crystal-clear. To do that, moreover, they have no problem undermining the US's negotiating hand. The US is at its strongest in negotiations when the President can confidently assert the full support of Congress and at its weakest when members of Congress publicly threaten to sabotage the president's efforts. As the retired US diplomat R. Nicholas Burns has aptly noted, "We can only have one president negotiating with Iran, not 535 presidents negotiating." Right now, the US is being left unable to speak with one voice at the table with Iran, and US credibility is the victim.

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This has other consequences, too. While some members are signaling that President Obama might not be able to fulfill whatever pledges he makes at the negotiating table, Iran is left shouldering the risk. And we can be sure that Iran will discount such risk from the nuclear compromises it would otherwise be willing to make. If there's an

equation to this, it is a simple one: The more threats congressional hawks make, the less likely Iran will agree to robust limits to its nuclear program. This is not the first time that hardliners on Capitol Hill will work to the benefit of hardliners in Tehran. Nor will it be the last. President Obama and his team have worked hard to resolve a major foreign policy crisis and reach a peaceful solution with Iran. Some members of Congress, on the other hand, have sought to manufacture crises and push the US towards a war it has neither the will nor the means to fight. The two sides will clash soon enough.

Source: Tyler Cullis is a legal fellow and policy associate at the National Iranian American Council. http://www.rollcall.com/, 24 October 2014.

OPINION- Amit Bhandari

A Case for Nuclear Power

The construction of more nuclear power plants can help reduce India's excessive reliance on coal that is hurting the power sector and the economy. News reports on 09 October 2014 indicated that India's top power generation company NTPC will be shutting down 1,200 megawatts of coal-fired power plants because of fuel shortage. There is also news that the state of Punjab has shut down 10 of 14 coal fired power plants for the same reason. The recent Supreme Court judgment on coal block allocation has created uncertainty around private sector investments in coal sector, and the dominant player Coal India Limited is unable to cope up with growing demand. Under the current circumstances, nuclear energy is a cheaper and a more reliable option. In its recently brought out FY-14 annual report, Nuclear Power Corporation of India gives the average tariff for all its power plants as Rs 2.71/unit for the year. This isn't a one-off low-cost model; the average tariff was Rs 2.69/unit during FY13.

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This gives rise to the question – how does this compare with other forms of electricity? India uses coal to generate bulk of its electricity and the NTPC is the largest and the lowest cost producer in that space. The NTPC's average tariff during FY14 was Rs 3.3/unit. The NTPC gets its entire coal requirement from Coal India at less than international prices. Private sector producers such as Tata Power or Adani Power, which import coal from countries such as Indonesia and Australia, have higher cost of generation. Unlike coal or gas based power, most of the cost of nuclear power is incurred during construction and fuel is a minor cost, as Gateway House has written earlier. Thus, once the power plant is completed, cost of electricity is unlikely to see major fluctuations.

Nuclear power also scores higher on reliability. During FY14, NPCIL's plants operated at a load factor of 83.5%. NTPC was marginally behind at 81.5%. However, the combined figure for all coal-fuelled power plants in India was 65.5% – which indicates the problem caused by unreliable fuel supply. A caveat here – the NPCIL's improved performance is a recent development, after India and the US signed the 123 Agreement, which is known as the US-India Civil Nuclear Cooperation in 2008. India was locked out of international nuclear trade before the signing of this agreement and had to rely only on insufficient domestic uranium supplies from Jharkhand, Meghalaya, Andhra Pradesh and Rajasthan. After 2008, India started importing nuclear fuel in a big way from Russia, France, Kazakhstan, and Uzbekistan. As a

result, NPCIL's plants saw their capacity utilization improve from ~50% levels earlier to 80%+ now. India has recently also concluded a fuel supply deal with Australia, a major uranium producer. With fuel supply no longer an issue, India needs to scale up its nuclear program now.

Source: http://www.gatewayhouse.in/,10 October 2014.

Under revised terms, existing cooperation on the design of the UK's nuclear warheads will be extended to allow similar collaboration on the nuclear reactors that power the new fleet of submarines carrying the UK's Trident ballistic missiles. The future of Trident is due to be decided in 2016. All three main political parties back the programme.

NUCLEAR STRATEGY

UK

Trident Treaty May Be Renewed Without Parliamentary Scrutiny

The UK is poised to quietly ratify a defence treaty that critics say will see it become more dependent on US expertise for its multi-billion pound Trident nuclear weapons programme, without the agreement being scrutinised by MPs. Nuclear proliferation experts have expressed concern that the US-UK Mutual Defence Agreement, laid before parliament earlier this month and due to be extended for a further 10 years, may be adopted without debate. Under revised terms, existing cooperation on the design of the UK's nuclear warheads will be extended to allow similar collaboration on the nuclear reactors that power the new fleet of submarines carrying the UK's Trident ballistic missiles. The future of Trident is due to be decided in 2016. All three main political parties back the programme.

It means the UK has to buy in to US security strategy, come what may, even if it has proved disastrous in some parts of the world." "The Mutual Defence Agreement shows just how much Britain depends on the US for its nuclear weapons.

Dr Nick Ritchie, a lecturer in international security at the University of York, said the sharing of nuclear weapons technology between the UK and the US was a form of "legalised proliferation" that raised questions about the relationship between the allies. "It's controversial with some parts of the electorate because of the extent to which it gives implicit and explicit leverage to Washington," Ritchie said. "It means the UK has to buy in to US security strategy, come what may, even if it has proved disastrous in some parts of the world." "The Mutual Defence Agreement shows just how much Britain depends on the US for its nuclear weapons," said Peter Burt, director of the Nuclear Information Service. "Far from being an 'independent deterrent', virtually every element in the UK's Trident nuclear weapons programme is propped up by American technology and knowhow."

The MDA was first signed in 1958. Its terms are reviewed and renewed by the US and UK governments every 10 years. Previous governments have been keen to stifle debate about the renewal of the MDA. "A debate on the renewal of the MDA would be used by some as an opportunity to raise wider questions concerning the possible renewal of the nuclear deterrent ... and our obligations under the nuclear non-proliferation treaty," noted a 2004 internal MoD briefing to Labour defence ministers released under the Freedom of Information Act.

...The Ministry of Defence said it was for parliament to decide if it wanted to scrutinise the agreement. The proposed amendments did not extend the arrangement beyond that outlined in 1958 and the UK would continue to maintain its own nuclear weapons programme...

Source: http://www.theguardian.com/, 25 October 2014.

USA

Nuclear Weapons in the 21st Century

...The world is facing serious challenges: the threats to Ukraine's sovereignty and Russia's flagrant disregard for international law, the continuing conflicts in the Middle East, a dangerous Ebola outbreak in West Africa that has now travelled to our shores. It is not surprising that most people are not focused on nuclear weapons or nuclear deterrence.

When the Cold War ended, the looming threat of nuclear war seemed to drift away for the average American. When was the last time you even heard of someone doing a duck-and-cover drill or building a bomb shelter in their backyard? Unfortunately, there are still thousands and thousands of nuclear weapons in the world. The threat from these weapons is real and in fact, it may have increased due to the threat from nuclear weapons in the hands of terrorists.

The US has been working to limit and reduce the nuclear threat, while at the same time maintaining a safe, secure and effective nuclear arsenal for as long as nuclear weapons exist.

It was 31 years ago that President Reagan pronounced clearly and with conviction that "there can be only one policy for preserving our precious civilization in this modern age. A nuclear war can never be won and must never be fought." President Reagan's belief became the basis for pursuing serious nuclear arms reductions on a bilateral basis between the US and the SU, later with Russia. But how do President Reagan's policies apply in today's world, since the long standing principle of nuclear deterrence - the idea that a country would not initiate a nuclear war for fear of nuclear retaliation - does not apply to terrorists. This idea — the idea that we cannot assume that we can forever hold accidents, madness and miscalculation at bay — was certainly a factor that drove Henry Kissinger, Sam Nunn, Bill Perry and George Shultz to endorse the goal of seeking a world free of nuclear weapons. They saw that the world had changed. They saw that terrorists would not be deterred by a concept like mutually-assured destruction. These four giants of the US national security establishment warned that the very weapons that had provided stability during the Cold War could become liabilities in our current environment.

The goal was not new many leaders and presidents, including President Reagan, had endorsed a world without nuclear weapons. The difference was that Kissinger, Nunn, Perry and Shultz, not only endorsed the goal, they outlined an Action Plan to help reach the goal. "Without the bold vision," the four said in 2007, "the actions will not be perceived as fair or urgent. Without the actions, the vision will not be perceived as realistic or possible." President Obama laid out his own long-term vision for the peace and security of a world without nuclear weapons through practical, responsible steps in his speech in Prague five years ago. In the years that have followed, the US has been working to limit and reduce the nuclear threat, while at the same time maintaining a safe, secure and effective nuclear arsenal for as long as nuclear weapons exist.

One part of this effort was to negotiate a new strategic arms treaty with Russia – the New Strategic Arms Reduction Treaty, or New START. I led these negotiations for the US and we and the Russians reached agreement on the Treaty in early 2010. In December of that year, the US Senate gave its advice and consent for ratification. New START is important because the US and Russia possess more than 90 percent of the world's nuclear weapons. When the New START Treaty is fully implemented, it will result in the lowest number of deployed nuclear warheads since the 1950s. The implementation of this Treaty is going very well. It is enhancing our national security, as well as strategic stability with Russia. The current tensions with Russia highlight the importance of mutual confidence provided by data exchanges and on-site inspections under the Treaty, and the

security and predictability provided by verifiable mutual limits on strategic weapons.

While New START's implementation is proceeding in a business-like fashion, we are having severe difficulties with another Treaty – the Intermediate-Range Nuclear Forces Treaty. This landmark treaty, negotiated during the Reagan Administration, banned an entire class of nuclear weapons- those deployed on missiles with a range of 500 to 5,500 kilometers. This past summer, the US announced its determination that Russia is in violation of this Treaty. We are deeply concerned about this, as we believe that the INF Treaty benefits the security of the US, our allies, and the Russia Federation. For that reason, we urge Russia to resolve our concerns, return to compliance, and ensure the continued viability of the Treaty. We are in complete compliance with the INF Treaty. Nevertheless, we have told our Russian colleagues that we will listen to their concerns about our INF implementation and try to allay those concerns. Indeed, we have been working to do so, but the Russians seem to be only hearing and not listening to us. We need to continue working this problem, but they need to listen to our concerns, just as we are listening to theirs.

The US will only pursue agreements that are in our national security interest and that of our allies. We expect Russia will do the same.

As we look to the future with respect to future nuclear reduction agreements, the US will only pursue agreements that are in our national security interest and that of our allies. We expect Russia will do the same, but in the course of pursuing such national goals, historically we have always come up with agreements that are in our mutual interests to reduce nuclear threats and ensure mutual stability and predictability. Cooperation in the arms control realm has been an important facet of strategic stability over the past forty years and it should remain so in the future. Of course, we are in a difficult crisis period over Ukraine. However, we need nuclear cooperation with Russia and others to address new threats, first and foremost the risk that terrorists could acquire a nuclear weapon or the fissile materials needed to make one.

...Over 2,000 nuclear explosive tests have taken place around the world over the last 69 years. As many of you know, from 1951 to1992, 928 nuclear explosive tests were conducted at the Nevada Test Site, now known as the Nevada National Security Site. This included 100 above-ground nuclear explosive tests. These above-ground tests, the purpose of which was to further improve the effectiveness, safety and security of our nuclear deterrent, had the consequence of distributing radioactive fallout downwind from the site.

Over time, radioactive and cancer-causing particles, like Strontium-90, found their way into milk and other products, eventually ending up in the bones and teeth of children. Beyond the multiple radioactive "hotspots" in Utah, hotspots were detected throughout the West and as far away as the East Coast. Growing public concern about the dangers of nuclear explosive testing collided with a turning point in history – the Cuban Missile Crisis. As an initial step leading us back from the brink of nuclear war, President John F. Kennedy called for a complete ban on nuclear explosive testing in 1963.

We were able to achieve part of this objective through the Limited Test Ban Treaty back in 1963 – banning tests in the water, in space and in the atmosphere. At that time, we did not reach agreement on banning underground nuclear explosive testing, as we lacked the technology to accurately detect such tests. Through steady work and persistence, we developed the tools we would need to negotiate a verifiable CTBT...

...Although the US signed the CTBT in 1996, the Senate in 1999 failed to give its advice and

consent to ratification. At that time, two main issues concerned the Senators: our ability to maintain the nuclear stockpile without explosive testing and our ability to verify compliance with the Treaty.

Our science-based Stockpile Stewardship Program is ensuring that we do not need to conduct nuclear explosive tests in order to ensure the safety, security and effectiveness of the nuclear weapons we maintain.

Today the situation is much different. Our science-based Stockpile Stewardship Program is ensuring that we do not need to conduct nuclear explosive tests in order to ensure the safety, security and effectiveness of the nuclear weapons we maintain. In fact, last month marked 22 years since the last US nuclear explosive test. Today, the Department of Energy's Stockpile Stewardship Program – a suite of experimental, diagnostic and supercomputing capabilities – allow us to model and simulate nuclear devices without nuclear explosive testing. With this program in place, the Directors of the Department's National Security Laboratories affirm the safety, security and effectiveness of the current stockpile to the President every year. In fact, they believe we actually understand more about how nuclear weapons work now than during the period of nuclear explosive testing.

The CTBT is good for US and international security. It is a key part of leading nuclear weapons states toward a world of diminished reliance on nuclear weapons and reduced likelihood of nuclear arms races. An in-force CTBT will make it difficult for states without nuclear weapons to develop advanced nuclear weapons capabilities.

The ability to monitor and verify compliance with the CTBT is also stronger than it has ever been. The International Monitoring System (IMS), the heart of the verification regime, was just a concept two decades ago. Today, it is a nearly complete, technically advanced, global network of sensors, including 35 stations in the US that can detect even relatively low-yield nuclear explosions. My boss, Secretary of State John Kerry recently referred to the IMS as one of the great accomplishments of the modern world. In addition to its verification role, the IMS has also proven its ability to contribute critical scientific data to benefit mankind. Since the Indian Ocean earthquake and tsunami in 2004, the IMS has contributed critical seismic data to the Pacific tsunami warning system. Additionally, after the Fukushima nuclear crisis, we saw how the IMS can contribute critical insight in tracking radioactivity from nuclear reactor accidents.

The on-site inspection element of the CTBT verification regime has advanced significantly as well. In the next few weeks, US experts are going to participate in a large-scale Integrated Field Exercise sponsored by the CTBT Organization and hosted by Jordan. I will be an observer at that exercise, seeing first-hand the formidable technology and expertise the international community can bring together to investigate the site of a suspected nuclear explosion. Plain and simple, the CTBT is good for US and international security. It is a key part of leading nuclear weapons states toward a world of diminished reliance on nuclear weapons and reduced likelihood of nuclear arms races. An in-force CTBT will make it difficult for states without nuclear weapons to develop advanced nuclear weapons capabilities. An in-force Treaty would also make it hard for states with more established nuclear weapon capabilities from confirming the performance of advanced nuclear weapon designs that they have not tested successfully in the past.

Because of this, an in-force CTBT will also constrain regional arms races. These constraints will be particularly important in Asia, where states are building up and modernizing nuclear forces. All told, it is in our interest to close the door on nuclear explosive testing forever…The most

important thing that supporters of the CTBT can do is to educate their friends, their family and their communities on the reasons that the Treaty is good for America. Two people who have been doing just that are right here in Utah. On 8 March 2010, the Utah House of Representatives unanimously passed a resolution urging the US Senate to give its advice and consent to ratification of the CTBT. The resolution, HR4, was introduced by Democratic Representative Jennifer Seelig, and co-sponsored by Republican Representative Ryan Wilcox.

In addition to noting the security arguments for the Treaty, the nonbinding Utah House resolution and the floor debate recognized the health effects suffered by Utahns and other downwinders exposed to fallout from nuclear explosive testing in the past. The work of Representatives Seelig and Wilcox is important for two reasons. First, it is critically important that Americans understand the nuclear threat and how they can help. You all have a huge say in the future of this nation's security and it is important for you to make sure that your voices are heard. Seelig and Wilcox made sure that Utahns had a voice in this debate. Second and just as important, they cast aside party affiliation and worked together on an issue that was important to their constituents – an all-too rare occurrence these days. They should be commended on their partnership and I hope that they can serve as an example as we expand the dialogue on the CTBT.

With an emphasis on an open dialogue, rather than a timeline, we are working with the Senate to re-familiarize Members with the Treaty. Ratification of this Treaty will require debate, discussion, questions, briefings, trips to the National Labs and other technical facilities, hearings and more, as was the case with the New START Treaty. The Senators should have every opportunity to ask questions – many, many questions – until they are satisfied. That is how good policy is made and that is how treaties get across the finish line. We are confident that we have a good case to make. As former Reagan-era Secretary of State George Shultz said, "Senators might have been right voting against the CTBT some years ago, but they would be right voting for it now." Utah's own former Senator Bob Bennett actually came up with a nice twitter worthy hashtag, when he told me, "I'm converted" on the issue of CTBT ratification.

We have a lot of work to do, but as I said, this is a worthy goal. An in-force CTBT will benefit the US and indeed, the whole world. With that I will wrap up, as I want to leave some time for questions, but I want to leave you all with a thought. We face challenges on nuclear issues and international security issues across the board. At times, it can seem overwhelming. That's when we should heed the words of one of our less-quoted Presidents, Calvin Coolidge. "Nothing in the world can take the place of Persistence," he said. "The slogan 'Press On' has solved and always will solve the problems of the human race."....

Source: Remarks, Rose Gottemoeller, Under Secretary for Arms Control and International Security. http://www.state.gov/, 21 October 2014.

BALLISTIC MISSILE DEFENCE

INDIA

India Successfully Test-Fires Nuclear Capable Cruise Missile Nirbhay

India's indigenously developed nuclear capable sub-sonic cruise missile 'Nirbhay' was successfully test-fired from a test range at Chandipur on 17 October 2014. "The missile was test-fired from a mobile launcher positioned at launch pad 3 of the Integrated Test Range at about 10.03 hours," said an official soon after the flight took off from the launch ground...It is the second test of the sub-sonic long range cruise missile 'Nirbhay' from the ITR.

The maiden flight, conducted on 12 March 2013 could not achieve all the desired parameters as "the flight had to be terminated mid-way when deviations were observed from its intended course," sources said. India has in its arsenal the 290 km range supersonic "BrahMos" cruise missile, which is jointly developed by India and Russia. But 'Nirbhay' with long range capability is a different kind of missile being developed by the DRDO....

Source: http://www.deccanchronicle.com/, 17 October 2014.

NUCLEAR ENERGY

FRANCE

French Parliament Approves Energy Transition

The lower house of France's parliament has voted in favour of cutting the country's reliance on nuclear energy to 50% of power generation by 2025 as part of the a long-awaited energy policy. French president Francois Hollande's 2012 election pledge was to limit nuclear's share of French generation at 50% by 2025, and the closure of France's oldest nuclear power plant, Fessenheim, by the end of 2016. In June 2014, following a national energy debate, his government announced that the country's nuclear generating capacity will indeed be capped at the current level of 63.2 GWe. It will also be limited to 50% of France's total output by 2025. Nuclear currently accounts for almost 75% of the country's electricity production, making closures of power reactors appear inevitable.

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Debate about France's Energy Transition for Green Growth bill began in the National Assembly on 1 October 2014. On 10 October 2014, deputies in the lower house of parliament agreed on the overall objectives of the bill. These include: a 40% reduction in greenhouse gas emissions by 2030 and a 75% reduction by 2050, compared with 1990 levels; halving overall energy consumption by 2050 compared with 2012; increasing renewable energy's share of final energy consumption to 32%; and cutting the share of nuclear in electricity generation to 50% by 2025. Members of the French parliament will now have two weeks to examine the bill. The bill is expected to be ratified next year (2015).

A parliamentary report of the Committee on Finance was presented to the National Assembly on 30 September. It called for a postponement in the closure of the Fessenheim plant, saying that there were no technical reasons for its closure and that shutting the plant early would have economic and social impacts. According to the report, the closure of Fessenheim in 2016 - when the EPR currently under construction at Flamanville is due to start operating - would cost the state some €5 billion ($6.3 billion), including some €4 billion ($5.1 billion) in compensation to EDF.

Scientists are reporting a significant advance in the quest to develop an alternative approach to nuclear fusion. Researchers at Sandia National Laboratories in Albuquerque, New Mexico, using the lab's Z machine, a colossal electric pulse generator capable of producing currents of tens of millions of amperes, say they have detected significant numbers of neutrons—byproducts of fusion reactions—coming from the experiment.

The Fessenheim plant is currently generating average annual profits of some €200 million ($254 million), the report says. Allowing the plant to continue operating after 2016 until 2040 would result in profits of some €4.7 billion ($6.0 billion), it estimates… The report concluded, "Whatever the long-term energy policy followed, it would make sense, fiscally and economically, to retain the benefit of the 'surplus nuclear' by not prematurely closing second generation plants currently in operation."

Source: http://www.world-nuclear-news.org/, 13 October 2014.

GENERAL

Z Machine Makes Progress toward Nuclear Fusion

Scientists are reporting a significant advance in the quest to develop an alternative approach to nuclear fusion. Researchers at Sandia National Laboratories in Albuquerque, New Mexico, using the lab's Z machine, a colossal electric pulse generator capable of producing currents of tens of millions of amperes, say they have detected

significant numbers of neutrons—byproducts of fusion reactions—coming from the experiment. This, they say, demonstrates the viability of their approach and marks progress toward the ultimate goal of producing more energy than the fusion device takes in.

...Fusion scientists have been laboring for more than 60 years to find a way to contain superhot plasma and heat it till it fuses. Today, most efforts are focused on one of two approaches: Tokamak reactors, such as the international ITER fusion project in France, hold a diffuse plasma steady for seconds or minutes at a time while heating it to fusion temperature; laser fusion devices, such as the National Ignition Facility in California, take a tiny quantity of frozen hydrogen and crush it with an intense laser pulse lasting a few tens of billionths of a second to heat and compress it. Neither technique has yet reached "breakeven," the point at which the amount of energy produced by fusion reactions exceeds that needed to heat and contain the plasma in the first place.

Sandia's technique is one of several that fall into the middle ground between the extremes of laser fusion and the magnetically confined fusion of tokamaks. It crushes fuel in a fast pulse, as in laser fusion, but not as fast and not to such high density. Known as magnetized liner inertial fusion (MagLIF), the approach involves putting some fusion fuel (a gas of the hydrogen isotope deuterium) inside a tiny metal can 5 millimeters across and 7.5 mm tall. Researchers then use the Z machine to pass a huge current pulse of 19 million amps, lasting just 100 nanoseconds, through the can from top to bottom. This creates a powerful magnetic field that crushes the can inward at a speed of 70 km/s.

While this is happening, the researchers do two other things: They preheat the fuel with a short laser pulse, and they apply a steady magnetic field, which acts as a straitjacket to hold the fusion fuel in place. Crushing the plasma also boosts the constraining magnetic field, from about 10 tesla to 10,000 tesla. This constraining field is key, because without it there is nothing to hold the superheated plasma in place other than its own inward inertia. Once the compression stops, it would fly apart before it has time to react.

The Sandia researchers reported this week in Physical Review Letters that they had heated the plasma to about 35 million degrees Celsius and detected about 2 trillion neutrons coming from each shot. (One reaction of fusing two deuteriums produces helium-3 and a neutron.) Although the result shows that a substantial number of reactions is taking place—100 times as many as the team achieved a year ago—the group will need to produce 10,000 times as many to achieve breakeven. "It is good progress but just a beginning," says Sandia senior scientist Mike Campbell. "We need to get more energy into the gas and increase the initial magnetic field and see if it scales in the right direction."

One significant aspect of the results is that the researchers also detected neutrons coming from the fusion of deuterium and tritium, another hydrogen isotope. The main reaction, deuterium with deuterium, or D-D, produces either helium-3 or tritium. Those reaction products would normally be traveling fast enough to fly out of the plasma without reacting again. But the intense constraining magnetic field forces the tritium to follow a tight helical path in which it is much more likely to collide with a deuterium and fuse again. The researchers detected 10 billion neutrons from deuterium-tritium (D-T) fusions. "To me, the most interesting data was the secondary D-T neutrons, which is very highly suggestive that the original [10 tesla] field was frozen in the plasma and reached values of [about 9000 tesla] at stagnation," Campbell says.

...Simulations suggest that the Z machine's maximum current of 27 million amps should be enough to reach breakeven. But the researchers are already setting their sights much higher. A hoped-for upgrade to 60 million amps, they say, would boost the power output into a "high gain" realm of 1000 times input—a giant step toward commercial viability.

Source: http://news.sciencemag.org/, 10 October 2014.

INDONESIA

Mafia Wants Nuclear Power Project to Fail, Says Minister

Research and Technology minister Gusti Muhammad Hatta said that nuclear power plant development in Indonesia is facing obstacles including from the mafia who are taking advantages of fuel utilization for electricity. "Everyone knows that some people are benefited from oil-fueled power plants," Gusti said on Saturday, 11 October 2014...However, Gusti guaranteed that Indonesia has qualified manpower in dealing with nuclear technology. Moreover, Gusti said, the Research and Technology Ministry has conducted a study that Bangka Island is a safe place for a nuclear power plant site.

In the coming years South Africa hopes to buy up to eight new reactors to complement the existing reactor in Koeberg in southern South Africa.

...Gusti explained that the results of the study have been submitted to the Energy and Mineral Resources (ESDM) Ministry and the State Electricity Company (PLN). Gusti hopes that the new government will have the political will to develop nuclear power plant and ensure Indonesia to be free of energy crisis.

Source: Ahmad Rafiq, http://en.tempo.co/, 13 October 2014.

NUCLEAR COOPERATION

FRANCE- SOUTH AFRICA

France Signs Nuclear Cooperation Accord with South Africa

France signed a cooperation accord with South Africa for the development of civil nuclear technology. The accord was signed by French Minister for Foreign Affairs Laurent Fabius and South Africa's Energy Minister Joematt Pettersson on the opening day of the first ever world nuclear trade fair at Le Bourget near Paris. In the coming years South Africa hopes to buy up to eight new reactors to complement the existing reactor in Koeberg in southern South Africa. As well as the French giant Areva, other companies are also in competition for this South African business, for example Russia's Rosatom. Areva is currently building a third generation EPR nuclear reactor in China, as well as in France and in Finland, where completion of construction is delayed and over-budget.

...In September 2014, Areva announced the signing of a contract for arou nd 300 million euros with the South African public electricity company Eskom, to replace the vapour generators at the Koeberg plant. Areva is currently in difficulties and aims to sell 10 EPRs in the next couple of years.

Source: http://www.english.rfi.fr/, 14 October 2014.

INDIA-FINLAND

India, Finland to Cooperate In Civil Nuclear Energy

India and Finland signed 19 agreements including one for peaceful use of nuclear energy as well as management of radioactive waste from atomic power plants.

India and Finland signed 19 agreements including one for peaceful use of nuclear energy as well as management of radioactive waste from atomic power plants...The agreement for nuclear cooperation was signed by Indian ambassador to Finland Ashok Kumar and director general of Radiation and Nuclear Safety Authority of Finland Petteri Tiippana in presence of Mukherjee and Niinisto.

The arrangement for cooperation between the Atomic Energy Regulatory Board of India and the Radiation and Nuclear Safety Authority of Finland will ensure cooperation in the field of nuclear and radiation safety regulation concerning exchange of information personnel related to the peaceful use of nuclear energy and radiation related to nuclear installations, radiation and nuclear safety including radioactive waste management, safety related issues and research. It will also cover radiation safety, emergency preparedness, and radioactive waste management associated with the operation of nuclear power plants....

Source: Excerpted from http*:// timesofindia.indiatimes.com/, 15 October 2014.*

JAPAN- TURKEY

Japanese-French consortium Sees Turkish Nuclear Reactor Ready By 2023

A Turkish nuclear plant to be built by Japanese-French consortium will be ready to come online by 2023...In May 2013, Japan's Mitsubishi Heavy Industries (MHE), Itochu Corp. and France's GDF Suez agreed to build Turkey's second nuclear power plant at an estimated cost of $22 billion. The 4,800 megawatt plant in the Black Sea town of Sinop will use Atmea1 reactors developed by MHE and French Areva.

..MHE Energy & Environment VP Terumasa Onaka said that this month or next, the Turkish parliament is expected to ratify the Turkish-Japanese agreement signed by the prime ministers of the two countries in 2013. The next step will be a feasibility study and licensing, which will take about 18 months, so that construction could start around 2017-18 and the first power be delivered in 2023.

Onaka said the plan is for the Turkish side to take a stake of about 50 percent in the project, while the foreign investors could split their part three ways between MHE, Itochu and GDF, adding that nothing has been decided yet. He added there was no plan for Areva to take a stake in the project....

Source: http://www.reuters.com/, 14 October 2014.

US-INDIA

Nuclear Power Investors Need Clarity on Liability, Says Anil Kakodkar

Former AEC chief Anil Kakodkar, one of the key negotiators for the Indo-US nuclear deal that has failed to translate into a single dollar of investment or generation of additional energy, had warned the UPA government about the negative implications of the nuclear liability law that it pushed through Parliament, but was overruled. Speaking at a nuclear energy conference, Kakodkar said no new nuclear power capacity can be added unless there are urgent corrective action on the Civil Liability for Nuclear Damage Act, 2010 that has spooked foreign as well as domestic investors and suppliers due to the ambiguity and lingering risks it entails. "Nobody is wanting to make a bid (on any nuclear power project), unless there is clarity on liability, whether it's an Indian supplier or foreign supplier...

Experts said the law is also leading to global vendors quoting far higher prices for Indian contracts as they seek to factor in unpredictable liability risks..."Our lawmakers have made that decision and we must abide by it, although I had reservations about the idea and had said so even as things were happening. But leave that aside. Having made the law, we should now move ahead," he said, stressing that there are several possible interpretations to how much liability it could impose on industry. "Nobody's sure till someone goes to court and gets a decision," he said. Even public sector firms are staying away from nuclear power investments for fear of taking on unknown liability risks and the government must articulate its stance on investor concerns with 'great speed' for transforming the nuclear energy sector's bleak outlook in India, the former atomic energy boss said.

Even public sector firms are staying away from nuclear power investments for fear of taking on unknown liability risks and the government must articulate its stance on investor concerns with 'great speed' for transforming the nuclear energy sector's bleak outlook in India.

"There are many public sector units wishing to invest in nuclear energy. Many of them have personally asked me and said 'We have money, but can't hold it for too long'. There are many industries looking at large potential of nuclear energy and want to invest to augment their manufacturing capacity. They are not sure whether that investment would be good or not," said Kakodkar, who now serves as the DAE Homi Bhabha chair professor at BARC....

Source: http:// articles.economictimes.indiatimes.com/, 15 October 2014.

US-VIETNAM

US-Vietnam Sign Agreement on Nuclear Research Cooperation

A comprehensive cooperation agreement between Vietnam and the US has been signed on consultancy capability, research and development, and training and services in the nuclear energy field. Several days after the 123 Agreement on the US-Vietnam civil nuclear cooperation took effect on 03 October 2014, the cooperation agreement between the Vietnam Atomic Energy Institute (VINATOM) and Lightbridge Corporation was signed as a first step in the implementation. The agreement was signed by VINATOM's director Tran Chi Thanh and Jonathan Baggett, Vice CEO of Lightbridge Corporation, in Hanoi on 17 October 2014. Local newspapers commented that the agreement showed significant improvement in the strategic relations between Vietnam and the US.

According to VINATOM, this was the second cooperation agreement the institute had signed with the US corporations in the field of nuclear energy. Prior to that, a cooperation agreement had been signed between VINATOM and Westinghouse Electric (WEC) on training Vietnamese engineers and workers in nuclear energy design and safe analysis at the University of North Carolina, and for training at WEC's head office in Pittsburgh. The signing of the 123 Agreement was described as a step to remove barriers for Vietnam to access US technologies and training. Dr. Nguyen Nhi Dien, head of the Da Lat Nuclear Research Institute, said with the agreement signed, Vietnam would have opportunities to access source technologies and nuclear materials with no limitations.

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...Dr. Tran Chi Thanh denied a report on CNN that US-based Lightbridge will design and choose the nuclear reactors and materials as well as set up nuclear safety procedures. Thanh also said that Lightbridge Corporation had no plans to build a $500 million nuclear research center for Vietnam. Thanh said the only news related to the $500 million sum was a project to build the Center for Nuclear Energy Science and Technology CNEST with a preferential loan of $500 million to be provided by the Russian government. "There has been no cooperation between Vietnam and the US on the establishment of a nuclear center. The cooperation between the two sides, to date, has been in training only," Thanh said. Vietnam plans to build 10 nuclear reactors by 2030. The Vietnam-US Nuclear Agreement will pave the way for the US corporations to join the Vietnamese market worth $10 billion. It is expected to be worth $50 billion by 2030.

Source: http://english.vietnamnet.vn/, 23 October 2014.

NUCLEAR PROLIFERATION

IRAN

Iran Admits Testing Nuclear 'Bridge Wires' at Exploded Parchin

Reports quote Iran as saying it tested devices to detonate nuclear reaction at secret facility that blew up this week. In the wake of the reported massive explosion at Iran's secret nuclear facility at Parchin ... it was reported by USA Today that Iran has admitted it had "tested 'exploding bridge wires'" at Parchin, and "not neutron initiators." ...Arutz Sheva published an article explaining how the IAEA in November 2011 reported that it had received "highly credible" information that Iran had tested "neutron initiators" at the site, and that Iran had told it that it had exploding bridge wire technology.

The same November 2011 IAEA report also reported that Iran had tested exploding bridge wires. Exploding bridge wires act to simultaneously trigger the conventional explosives components of a nuclear bomb, so as to create the right condition for the nuclear core to fully detonate in a nuclear reaction. In specific, the IAEA November 2011 Annex stated that "among the alleged studies documentation are a

number of documents relating to the development by Iran, during the period 2002–2003, of fast functioning detonators, known as 'exploding bridgewire detonators' or 'EBWs.'" It added that in 2008, Iran told the IAEA that "before the period 2002–2004, it had already achieved EBW technology. Iran also provided the Agency with a short undated document in Farsi, understood to be the specifications for a detonator development program, and a document from a foreign source showing an example of a civilian application in which detonators are fired simultaneously. However, Iran has not explained to the Agency its own need or application for such detonators."

"Given their [EBWs'] possible application in a nuclear explosive device, and the fact that there are limited civilian and conventional military applications for such technology, Iran's development of such detonators and equipment is a matter of concern," warned the IAEA document. As recently as 05 September 2014 , the IAEA reiterated that Iran is still trying to explain its civilian, non-nuclear-weapon, "need" for explosive bridge wires.

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...Such an implosion bomb was estimated by A.Q. Khan, father of the Pakistani nuclear-bomb, to be able to achieve a 20-21 kiloton yield equivalent to the plutonium implosion bomb code-named "Fat Man" that was dropped on Nagasaki August 9, 1945, and killed an estimated 35,000 to 40,000 people outright.

Source: http://www.israelnationalnews.com/, 10 October 2014.

Iran Expects Progress, If No Breakthrough, In Nuclear Talks with EU, US

Iran does not expect a breakthrough in high-level nuclear talks with the US and the EU this week but hopes they will help pave the way for a final deal...Mohammad Javad Zarif was quoted by Iran's Fars news agency after arriving in Vienna, where he was due to meet EU foreign policy chief Catherine Ashton... Talks between Iran and six powers - the US, France, Germany, China, Russia and Britain - are due to conclude by a self-imposed 24 November 2014 deadline with, diplomats hope, a deal to end a standoff that has lasted more than a decade.

Diplomats say major differences remain, especially over the future scope of Iran's enrichment of uranium, a process that can yield material either for civilian nuclear power stations - Tehran's stated goal - or for nuclear bombs, which Western powers have long suspected may be Tehran's underlying agenda... "The main thing for us now is that time is not being lost," Russian Deputy Foreign Minister Sergei Ryabkov was quoted as saying by Tass news agency. Israel has threatened military force against Iranian atomic sites if diplomacy fails to ensure Iran is deprived of the means of developing nuclear weapons through enrichment. Iran says Israel's presumed atomic arsenal is the main threat to peace.

Six Weeks to Deadline

...Ashton, who heads the team negotiating with Iran, will "work as hard as she can" to try and get a good agreement by the deadline, her spokesman, Michael Mann, said. "That is extremely important in every way."...Iran rejects Western allegations that it is seeking nuclear weapons capability, but has refused to halt uranium enrichment, and has been hit with US, EU and UNSC sanctions as a result...Iran and the six powers last November reached an interim deal under which Tehran suspended its most sensitive nuclear activity in exchange for some easing of the sanctions.

Source: Parisa Hafezi and Fredrik Dahl Additional reporting by Vladimir Soldatkin in Moscow, Louis Charbonneau in New York, John Irish and Matt Spetalnick in Paris, editing by Mark Heinrich, http://www.reuters.com/, 13 October 2014.

Iran: Geneva Nuclear Deal Requires Sanctions Lifted, Not Suspended

Iran's Foreign Ministry spokeswoman made it clear that based on the Geneva nuclear deal, signed between Tehran and six world powers last November 2014, the sanctions imposed on Iran should be removed, not temporarily suspended. Speaking at her weekly press conference here in Tehran, Marziyeh Afkham dismissed speculations about the mere suspension of the anti-Iran sanctions, noting that they should be completely lifted, as stipulated in the Geneva nuclear deal. On 24 November 2013, Iran and the G5+1 signed an interim nuclear deal in the Swiss city of Geneva. Based on the interim deal, the world powers agreed to suspend some non-essential sanctions and impose no new nuclear-related bans in return for Tehran's decision to freeze parts of its nuclear activities.

…"Contacts between Iran and the (Group) 5+1 are in progress and coordination for the future meetings are underway," Afkham added. Last week, top diplomats from Iran, the US, and the EU held trilateral meetings in Vienna to iron out differences and secure an agreement between Tehran and the G5+1 (alternatively known as the P5+1 or E3+3) in a bid to put an end to the West's 12-year-old standoff on Tehran's nuclear case.

Source: http://www.tasnimnews.com/, 22 October 2014.

NORTH KOREA

US, China Oppose North Korea Nuclear Test

Washington and Beijing have agreed that a nuclear test by North Korea would lead to its further isolation and set back efforts to restart regional talks on its nuclear disarmament, a US envoy said. After talks in Beijing… US envoy for North Korea Glyn Davies said both sides are opposed to any nuclear test by North Korea and said ridding it of nuclear weapons remains a condition for bringing stability to the region. "We reached strong consensus that a nuclear test will be troubling and will set back efforts to de-nuclearize the Korean Peninsula. De-nuclearization is a necessary precondition to peace and stability on the Korean Peninsula," Davies told reporters.

Beijing fell into rare agreement with Washington this past week, allowing the UN to tighten sanctions against North Korea as punishment for a rocket launch last month.

Davies' Beijing talks come amid visits to South Korea and Japan to discuss what to do about North Korea. His tour also comes as tensions are rising and China is showing signs it wants to rein in its North Korean ally. Beijing fell into rare agreement with Washington this past week, allowing the UN to tighten sanctions against North Korea as punishment for a rocket launch last month. In response, the North Korean Defense Commission, which commands the military, said it is prepared to conduct a nuclear test and made clear its missiles are capable of reaching the US. Another nuclear test by North Korea would pose a challenge to newly installed Chinese Communist Party leader Xi Jinping, unsteadying South Korea, Japan and the US…

Another nuclear test by North Korea would pose a challenge to newly installed Chinese Communist Party leader Xi Jinping, unsteadying South Korea, Japan and the US.

…China provides most of North Korea's fuel and a good deal of its food and accounts for an increasing share of its trade and investment. But in more than a decade of recurring missile launches, two nuclear tests and other provocations by North Korea, China has been reluctant to use its economic leverage, fearing it could destabilize its neighbor.

Source: http://www.timesunion.com/, 24 October 2014.

North Korea Now Has the Ability to Produce A Miniaturized Nuclear Warhead that Can Be Mounted Atop A Ballistic Missile.

That is the assessment of Gen. Curtis M. Scaparrotti, the senior US commander on the Korean Peninsula… Scaparrotti also concluded that Pyongyang has a functioning long-range mobile missile launcher. Although North Korea has conducted three nuclear explosion tests and

several medium-and long-range missile test firings, it had not been known whether the regime had developed a nuclear warhead sufficiently small to fit on top of a missile with the range to reach the continental US.

"Personally I think that they certainly have had the expertise in the past. They've had the right connections [with Iran and Pakistan]," commented Scaparrotti, "and so I believe have the capability to have miniaturized a [nuclear] device at this point, and they have the technology to potentially actually deliver what they say they have [and] I think they have a launcher that will carry it at this point."

...However, as I testified before Congress in March 2014, that benign assumption is flawed since, for example, it gives insufficient weight to Pyongyang's lengthy collaborative nuclear and missile relationship with Pakistan, a country that all experts assess already has nuclear weapons deliverable by missile. North Korean scientists provided critical assistance to Islamabad's missile programs in return for reciprocal uranium-based nuclear weapon expertise, technology and components. Available unclassified evidence indicates North Korea has likely already achieved warhead miniaturization, the ability to place nuclear weapons on its medium-range missiles and a preliminary ability to reach the continental US with a missile.

...US experts concluded that the recovered North Korean missile provided "tangible proof that North Korea was building the missile's cone at dimensions for a nuclear warhead, durable enough to be placed on a long-range missile that could re-enter the earth's atmosphere from space." A US official added that South Korea provided other intelligence suggesting that North Korea had "mastered the miniaturization and warhead design as well." Following an August 2013 meeting between South Korean Minister of Defense Kim Kwan-jin and US Secretary of Defense Chuck Hagel, a Ministry of Defense official commented that both countries agreed that North Korea could "miniaturize nuclear warheads small enough to mount on ballistic missiles in the near future."....

Source : http://dailysignal.com/, 27 October 2014.

NUCLEAR DISARMAMENT

INDIA

India Agrees to Nuclear No-First-Use Agreements, Firm on Non-Proliferation Treaty

Going over its traditional dual policies of not using nuclear weapons first and not targeting non-nuclear weapons nations, India on 20 October 2014 offered to enter into agreements incorporating the two principles. The country, however, has firmly ruled out NPT. "As a responsible nuclear power, India has a policy of credible minimum deterrence based on a 'No First Use' posture and non-use of nuclear weapons against non-nuclear weapon states. We are prepared to convert these into bilateral or multilateral legally binding arrangements," IANS quoted Ambassador DB Venkatesh Varma as saying...

India has a policy of credible minimum deterrence based on a 'No First Use' posture and non-use of nuclear weapons against non-nuclear weapon states. We are prepared to convert these into bilateral or multilateral legally binding arrangements.

...Additionally, India is not ready to surrender to FMCT which will prohibit it from further producing the fissile materials used to manufacture nuclear weapons, and has proposed negotiation. "Without prejudice to the priority we attach to nuclear disarmament, we support the negotiation in the Conference on Disarmament of an FMCT that meets India's national security interests," Varma added.

India is not ready to surrender to FMCT which will prohibit it from further producing the fissile materials used to manufacture nuclear weapons, and has proposed negotiation.

...India has reintroduced draft resolution on a Convention on the Prohibition of the Use of Nuclear Weapons and criticised nuclear power

countries for repeatedly voting against it since its first introduction in 1982. Varma said he regrets that a "sizeable minority of member states — some of them nuclear weapon states, some with nuclear weapons stationed on their soil and others with alliance partnerships underwritten by policies of first use of nuclear weapons — have voted against this resolution"...

The US is lobbying against an amendment to an international nuclear safety pact proposed by Switzerland, which Berne argues could help prevent Fukushima-style disasters but which may also increase industry costs.

Source : http://www.ibtimes.co.in/, 22 October 2014.

NUCLEAR SAFETY

GENERAL

US, Europeans Row Over Post-Fukushima Nuclear Safety Step

The US is lobbying against an amendment to an international nuclear safety pact proposed by Switzerland, which Berne argues could help prevent Fukushima-style disasters but which may also increase industry costs, diplomats said. Atomic energy powers Russia and Canada have also signaled opposition to the measure, which would put pressure on countries to upgrade existing nuclear plants and reach the safety requirements of new-generation reactors. Washington says it wants to improve safety, too, but sees no need to change the 77-nation Convention on Nuclear Safety (CNS). It says Switzerland's initiative, tentatively backed by other European countries, could be counter-productive. It would not go into effect for many years and might not be ratified by all CNS states, it says.

...The diplomatic dispute highlights persistent differences on how to best make sure there is no repetition of the reactor meltdowns in Japan in early 2011 - the worst such accident since the one at Chernobyl a quarter of a century earlier. Countries agree on the need for enhanced global safety after Fukushima, but not on how much international action is required. ...But Switzerland - which, like Germany, decided to move away from nuclear power after Japan's emergency - says more is needed and seeks what it calls a culture of continuous improvement. CNS states should not only apply up-to-date safety standards for new reactors, but also carry out back-fitting measures on plants that are already operating, it argues...The Swiss draft says nuclear plants "shall be designed and constructed with the objectives of preventing accidents ... In order to identify and implement appropriate safety improvements, these objectives shall also be applied at existing plants."

The Swiss draft says nuclear plants "shall be designed and constructed with the objectives of preventing accidents ... In order to identify and implement appropriate safety improvements, these objectives shall also be applied at existing plants.

The senior US State Department official warned that the amendment would "not work, it will be divisive, and it will fundamentally damage" the atomic safety convention. "We will be tied up with this controversy for the foreseeable future instead of working with real problems," the official added.

Source: Author, Fredrik Dahl, http:// www.reuters.com/, 23 October 2014.

NUCLEAR WASTE MANAGEMENT

RUSSIA

Legal Issues for Russian Radioactive Waste

Russia's national operator for radioactive waste management (NO RAO) has highlighted the main problems it faces in siting disposal facilities. These problems include a lack of common rules on resolving property disputes, difficulty in managing individual and local authority responsibilities, and a need for financing mechanisms to support municipalities in the areas where such facilities are to be located. NO RAO Director Yuri

Polyakov presented his recommendations on these issues at a meeting with its parent company Rosatom on 14 October 2014, which was chaired by Rosatom Director General Sergey Kirienko. "There are three critical issues in the operation of radioactive waste management enterprises: public acceptance, financing and property-land relations," Polyakov said. "Each of these has equal importance – the absence of a solution for one means the whole system can't function."...

There are three critical issues in the operation of radioactive waste management enterprises: public acceptance, financing and property-land relations.

...As preparation for this, NO RAO studied the legislative framework for the management of radioactive waste in France. Features of this framework include how to identify and study the development of a geological disposal facility for high level radioactive waste, as well as the siting and operation of disposal facilities for medium-, low- and very-low-level waste. ...Plans for disposal of low- and intermediate-level wastes are to be in place by 2018. It is expected to establish repositories for 300,000 cubic metres of low- and intermediate-level radioactive waste, and an underground research laboratory in Nizhnekansky granitoid massif at Zheleznogorsk near Krasnoyarsk for study into the feasibility of disposal of solid high-level radioactive waste and solid medium-level long-lived wastes by 2021. A decision on final high-level radioactive waste repository is expected by 2025.

The UK has accumulated a substantial amount of higher activity radioactive waste over the last 60 years following military nuclear programmes, electricity generation in nuclear power stations and the use of radioactive materials in industry, medicine and research.

Source: http://www.world-nuclear-news.org/, 16 October 2014.

UK-WALES

Welsh Government Asks For Views on Its Radioactive Waste Disposal Policy

The Welsh Government is asking for views on its policy for the disposal of higher activity radioactive waste. The Minister for Natural Resources, Carl Sargeant AM, is publishing a consultation paper on the disposal of higher activity radioactive waste, and is seeking views on the review of current Welsh Government policy, its preferred options for policy in the future and on what other options it might consider. The Welsh Government is required by the EU to report on its policy for the safe and responsible management of radioactive waste by summer 2015. Ahead of this date the Welsh Government is keen to ensure that its policy remains relevant and reflects changing circumstances. The UK has accumulated a substantial amount of higher activity radioactive waste over the last 60 years following military nuclear programmes, electricity generation in nuclear power stations and the use of radioactive materials in industry, medicine and research.

Further to this, the decision by the UK Government to build a new generation of nuclear power stations will result in additional volumes of radioactive waste that will need to be safely disposed of. Carl Sergeant – "This review will be done in an open and transparent way and as a first step we are consulting on the principle of whether the Welsh Government should adopt a policy for the disposal of HAW and if so whether geological disposal should be the means of disposal" The Welsh Government supports new nuclear power stations on existing sites in Wales such as at Wylfa Newydd, which will provide a constant low carbon energy source to complement the range of renewable energy developments in Wales.(While the UK Government has supported a policy of geological disposal for the management of radioactive waste since 2008, the Welsh Government has neither supported nor opposed this policy...

...However the Minister for Natural Resources has emphasised that no final decision to change

current Welsh Government policy has been made. He also stressed that any change in policy would not necessarily result in a disposal facility being built in Wales. The building of any disposal facility, in Wales or in England, would be dependent on a host community being prepared to come forward voluntarily to discuss potentially hosting a geological disposal facility. Those discussions could last for over a decade before the community would be asked to consider taking a final decision, and during which time the community would be able to withdraw at any time. Even with the current Welsh Government policy a community in Wales could seek to open discussions about potentially hosting a geological disposal facility. Plans for any potential disposal facility in Wales would also depend on the approval of a detailed safety case by Natural Resources Wales and the Office for Nuclear Regulation...

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... even if the Welsh Government does decide to adopt a policy involving geological disposal of HAW this would not necessarily result in radioactive waste being disposed of in Wales or indeed in any other part of the UK. Any future disposal facility would depend on a host community voluntarily coming forward to open discussions."...

Source: http://www.ciwm-journal.co.uk/, 24 October 2014.

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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