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OPINION – Rakesh Sood

Nuclear Tango in Afghan Shadow

The discussions over a possible US-Pak nuclear deal reminds us of the 1980s, when the Reagan administration deliberately overlooked Pakistan's clandestine nuclear activities. Notwithstanding its current troubles in Afghanistan, Washington should steer clear of repeating past mistakes. As Pakistan Prime Minister Nawaz Sharif visits the US, it is clear that the US and Pakistan are looking for some kind of a 'nuclear deal' and that the US involvement in Afghanistan once again provides the strategic justification. There is a sense of *déjà vu*, this exercise is reminiscent of the time of Ronald Reagan's presidency. The outcome then proved to be counterproductive in the long run: by the time Soviet Union withdrew from Afghanistan and the US re-imposed nuclear sanctions in 1990, Pakistan was already in possession of nuclear weapons, US-Pakistan relations had gone into a downward spiral and, within Pakistan, the *jihadi*-sectarian virus was taking root.

The first indication that Pakistan's nuclear ambitions had again entered US's Afghan calculus was the *Washington Post* article on October 6 by David Ignatius, who was writing about the takeover of Kunduz town in northern Afghanistan following a audacious attack by the Taliban. It

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was there that Mr. Ignatius suggested a nuclear deal with Pakistan, similar, though not identical to the 2008 India-US Civil Nuclear Agreement, could emerge as a "diplomatic blockbuster" when Mr. Sharif visited Washington. Predictably, the White House provided an ambiguous response, neither confirming nor denying the report. In October 2015, David Sanger, another veteran journalist at the *New York Times*, also wrote along similar lines about a

possible deal which would put constraints on Pakistan's rapidly growing nuclear arsenal. If so, he said this would reflect a considerable broadening of US-Pakistan nuclear talks which had so far been restricted to ensuring security

of Pakistan's nuclear assets. This idea is not new. Fuelled by Pakistan's unhappiness about the NSG's exceptional waiver given to India in 2008, a number of Western non-proliferation experts had been suggesting that one way to persuade Pakistan to stop going ahead with TNW would be to offer it a similar deal. They felt such a deal would also address the country's obsession with having 'parity' with India. These experts have also been keen purveyors of the 'South Asia as a nuclear flashpoint' hypothesis.

In 2014, Mark Fitzpatrick, earlier with US State Department and now with IISS, a London based think tank, came out with a report titled "Overcoming Pakistan's Nuclear Dangers". A couple of months ago, Michael Krepon (Stimson Centre) and Toby Dalton (Carnegie Endowment) co-authored a paper, "A Normal Nuclear Pakistan".

The authors stated that Pakistan's objective is a 'civilian nuclear cooperation deal' which would require an NSG waiver. Since India's entry into the NSG is likely to be blocked by China, one way out would be to integrate Pakistan too into the international non-proliferation architecture and 'put behind' its murky proliferation past. A second rationale is that with the introduction of short-range nuclear capable missiles (the 60-km range Nasr), described as a TNW, Pakistan has lowered the nuclear threshold and shifted from 'minimum credible deterrence' to 'full spectrum deterrence'. Mr. Krepon and Mr. Dalton suggested that in return for such a deal, Islamabad should accept certain constraints. It should eschew TNW, shift back to strategic deterrence, maintain its arsenal in 'recessed' (de-alerted) mode, sign the CTBT without waiting for India to do the same, and stop blocking the negotiations in Geneva on a FMCT. There had been few takers for the idea. Pakistan indicated that it would be unwilling to accept any restrictions on its nuclear posture and underlined the need for 'full spectrum deterrence'.

Unrealistic demand for parity: The factors that contributed to the US-India deal were qualitatively

different. The key drivers included: a growing strategic convergence, commercial and economic interests, India's clean track-record on non-proliferation, a stable democratic polity and the need for nuclear power as a clean energy resource to meet India's growing energy demands. These factors did not hold in Pakistan's case and in any event, China had addressed Pakistan's nuclear power demands by repeatedly assuring Pakistan of continuing its nuclear cooperation. At last count, China is building Chashma III and IV (2x340 MW) and KANUPP II and III (2x1000 MW), with options to build another five, all under concessional financing.

However, later, the Afghanistan factor entered the equation. With just another fifteen months left for the Obama administration to complete its term, the goal of a clean and managed exit for the US

troops seemed difficult to manage. The peace process between the Afghan government and the Taliban had stalled. President Ashraf Ghani was no longer convinced that Pakistan was serious about delivering on the talks with the Taliban. Suicide bombings and Taliban attacks had gone up with the Kunduz attack being a rude wake-up call.

Within the US, there was a growing feeling that a premature US exit would rapidly undo the gains that had been made in Afghanistan; this has already forced President Obama to postpone the departure of 5500 US troops from 2015-end to 2016-end. Pakistan had become indispensable and needed to be persuaded to be cooperative; but the question was, 'How'?

Peter Lavoy, who had dealt with South Asia in the DoD and in National Intelligence Council earlier, had taken over as Senior Director in the National Security Council (NSC). He was joined by Joshua White, formerly with the Stimson Centre. Both had spent many years working on non-proliferation issues and given their backgrounds, it is hardly surprising that a nuclear deal with Pakistan became a seductive option. A similar logic had driven US policy earlier during the Reagan years with disastrous consequences. Military and

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economic assistance to Pakistan had been severely curtailed in 1979 in view of disclosures about Pakistan's clandestine uranium enrichment and reprocessing activities. General Zia-ul-Haq's military takeover and former Prime Minister Zulfikar Ali Bhutto's execution had added to the disenchantment. However, with President Reagan's election, Pakistan emerged as the front line state in US's covert war in Afghanistan against the Soviet Union. Nuclear sanctions were waived in 'national interest'; instead, a six year special assistance package of \$3.2 billion was announced in 1981.

Mistakes under Regan and Bush: Evidence continued to mount about Pakistan accelerating its clandestine nuclear activities as it proceeded apace with its enrichment programme. In 1984, three Pakistani nationals were indicted in US for illegally exporting nuclear related materials and equipments. Similar incidents were reported from Germany and Switzerland. The Solarz Amendment, championed by US Congressman Stephen Solarz, kicked in to block assistance but the Reagan administration, obsessed with Afghanistan, overlooked Pakistan's nuclear activities and provided yet another waiver. Faced with growing pressure from the non-proliferation lobby, the Pressler Amendment, sponsored by Senator Larry Pressler, was adopted in 1985 under which the US President certified annually to the Congress that Pakistan did not possess a nuclear device and that the continued economic and military assistance was necessary in the 'national interest'.

In 1989, the Soviet Union withdrew from Afghanistan and in 1990, faced with definitive CIA reports about Pakistan have crossed all nuclear red lines, President George Bush (Sr.) was unable to provide the certification required under the Pressler Amendment, ending US economic and military assistance. But under the Afghan shadow, the US willingness to overlook Pakistan's clandestine activities and Dr. A.Q. Khan's 'nuclear Wal-Mart' enabled Pakistan to become a nuclear weapon state. After 9/11, Pakistan again emerged

as a front line state, this time as part of the 'global war on terror'. Nevertheless, by 2009, there was growing scepticism in the US about Pakistan's intentions. All terror attacks, in the West or elsewhere, whether successful or thwarted, were traced back to Pakistani *madrassas* and training camps; Osama bin Laden's presence in Abbottabad just reinforced US misgivings.

However, Pakistan had received economic and military assistance amounting to \$19 billion since 2002, with an additional \$13 billion as reimbursements from the Coalition Support Fund for allowing transit to Afghanistan and use of its ports and airports for coalition troops and equipment transfers. However, this has not helped Mr. Obama to manage a responsible exit from Afghanistan. The investment in a National Unity Government, led by President Ghani in Kabul, has failed to deliver despite Mr. Ghani's overtures to Pakistan which have damaged him domestically. The US-Pakistan nuclear tango in the 1980s took place during the Cold War. Today, India-US

relations are qualitatively different and successive leaders in both countries have contributed to realising the potential of the newfound strategic partnership.

Prime Minister Narendra Modi has gone out of his way to build a personal rapport with President

Obama, reflected in the frequent summit-level interactions. Foreign Secretary S. Jaishankar's personal involvement in the India-US nuclear deal makes him a trusted figure in the Washington circles. However, recent US moves in Afghanistan, like promoting peace talks with the Taliban on any terms, pushing the Afghan government towards unrealistic concessions and turning a blind eye to Pakistan Army's continued policy of distinguishing between 'good terrorists' and 'bad terrorists', have created serious doubts about the strength of US-India engagement. Practically, the Obama administration will be unable to deliver what Pakistan wants in the limited time that it has (the Indian deal took more than three years, 2005-08, to reach fruition) but this short-sighted policy will certainly have an adverse impact on India-US

Practically, the Obama administration will be unable to deliver what Pakistan wants in the limited time that it has (the Indian deal took more than three years, 2005-08, to reach fruition) but this short-sighted policy will certainly have an adverse impact on India-US relations in the long term.

relations in the long term. As the French have say: *Plus ca change, plus c'est la meme chose* (The more things change, the more they remain the same).

Source: <http://www.thehindu.com/>, 22 October 2015.

OPINION – Happymon Jacob

Mainstreaming a Nuclear Pakistan

India should offer conditional support to a civilian nuclear deal between the US and Pakistan while insisting that Islamabad signs the 'No-first-use treaty' and clamps down on home-grown terror. It is in India's interest to ensure that Pakistan's nukes are under international supervision. What should New Delhi's response be to a potential nuclear deal between the United States and Pakistan that could eventually mainstream the latter into the global nuclear order? New Delhi's initial reactions to media reports about a possible deal indicate that it would unambiguously resist any such move by the United States.

In a recent *Washington Post* column, David Ignatius wrote that "the United States might support an eventual waiver for Pakistan by the 48-nation Nuclear Suppliers Group, of which the United States is a member... the issue is being discussed quietly in the run-up to Prime Minister Nawaz Sharif's visit to Washington on October 22". The MEA quickly responded to what Mr. Ignatius called a potential US-Pak "diplomatic blockbuster" in the following words: "We've seen these reports and it is not for the first time this issue has surfaced. Whosoever is examining that particular dossier should be well-aware of Pakistan's track record in the area of proliferation. When India got this particular deal it was on the basis of our own

impeccable non-proliferation track record. That is the reason the US gave us 123 Agreement in 2005 and that is why we got a NSG waiver in 2008. Pakistan's track record is completely different, so we hope that will be taken into account in making any such decision".

The Ignatius piece should be seen in the context of a number of important developments which should be taken on board by India while evaluating

the merits of Pakistan's admission into the nuclear order. The NSG has been organising outreach meetings with Pakistan regarding nuclear exports for sometime now. Pakistan has also reached out to the international community to help end its

status as a nuclear outcast and to be treated on par with India. At the Hague Nuclear Security Summit in March 2014, Prime Minister Nawaz Sharif called for "Pakistan's inclusion in all international export control regimes, especially the Nuclear Suppliers Group." Pakistan also holds the key to the commencement of negotiations on a FMCT at the CD.

Chinese Support: Moreover, China, whose consent is necessary for admitting new members to the NSG, has consistently supported Pakistan's entry into the NSG. When Prime Minister Narendra Modi

visited China in May this year, the Sino-Indian joint statement had an interesting sentence: "The Chinese side took note of India's aspirations to become a member of the NSG, in a bid to strengthen international non-proliferation efforts". A

month later, the Chinese Foreign Ministry carefully balanced its support for India: "China has noted Pakistan's aspirations for NSG membership". Given that Beijing has previously opposed Washington's efforts at helping New Delhi to get the NSG membership, the Chinese willingness today to consider membership for both

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India and Pakistan will influence the thinking in Washington and key Western capitals. Pakistan-watchers in Washington do not think that the proposal for a nuclear deal for Pakistan would fructify anytime soon, and even if it does materialise, it will come with a number of conditionalities, many of them unacceptable to the Pakistan Army, the custodian of the country's nuclear arsenal.

Moreover, even if the negotiation process between the US and Pakistan eventually leads to a civilian nuclear deal, there is absolutely no reason for New Delhi to lose sleep over it, unless, of course, New Delhi wants to get back at Islamabad for crying foul when the Indo-US nuclear deal was being negotiated over a decade ago. Critics of the US-Pakistan deal advance a number of arguments why Pakistan should not be offered a nuclear deal by the United States. One, they point out that Pakistan has a terrible track record of nuclear proliferation and that a nuclear deal would be seen as rewarding such irresponsible behaviour.

Two, they argue that it would enable Pakistan to enhance its nuclear arsenal which, of course, is directed against India, making the latter more insecure. Third, they feel a US-Pakistan nuclear deal will hyphenate India and Pakistan once again in the international discourse, something New Delhi viscerally detests.

Yet another objection is an emotional, if not substantive, one. Consider, for instance, the following remark of a senior Indian commentator on the potential US-Pak deal: "it will show how hollow is the strategic relationship between India and the US, and why it would not be wise to trust the US. The India-US nuclear deal will be eroded

of much of its strategic importance bilaterally as result." Issues of national interest and strategy should be approached with clinical logic and incisive reasoning and pursued keeping in mind

the long-term interests of the country. Rhetorical questions like "How can the Americans treat India and Pakistan in the same way?" do not meet the above criteria. To my mind, there are at least four sets of reasons why a 'conditional nuclear deal' between US and Pakistan would be in

India's national interest. First of all, Pakistan's admission to the global nuclear order is good news for the international non-proliferation regime. An isolated nuclear Pakistan would not be in the interest of the international community or India.

Critics of the deal would argue that given Pakistan's well-known history of engaging in external nuclear proliferation, we should be wary of inviting it to be part of the global normative

framework. To me, that is precisely the reason Pakistan should be mainstreamed rather than kept out. I am not sure having a terror-infested nuclear-armed state for a neighbour – operating outside the reach and supervision of the global nuclear institutions – is in India's best interests.

Second, it is in India's interest to ensure that Pakistan's nuclear programme is under international safeguards, if not control. It is indeed better for the international community to be in the know of Pakistan's nuclear programme, as far as possible, than having absolutely no clue about what it is doing with its nuclear material and technology. The only nuclear relationship that Pakistan has today is with China. How can such

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an exclusive and obscure nuclear partnership be better for India than having a Pakistan whose nuclear programme is under continuous international supervision? More importantly, the long-drawn-out process of mainstreaming will have a great deal of impact on Pakistan's nuclear behaviour and will most certainly bring the Sino-Pak. nuclear relations under international scrutiny.

Let us not confuse a nuclear deal with status alone. A nuclear deal is primarily about undertaking responsibilities and the constant demonstration of good behaviour in exchange for an ability to engage in nuclear commerce and energy production. In short, the more the international control over Pakistan's nuclear programme, the better it is for India. Third, if India's experience of inking the nuclear deal with the US and other states, besides getting the NSG waiver and signing the India-specific Safeguards Agreement with the IAEA, is anything to go by, the road to nuclear normalcy is not going to be a smooth one for Islamabad. It would most certainly mean passing the non-proliferation regime's 'admission tests' as well as jumping through a number of hoops imposed by strategic conditionalities.

Pakistan Should Meet Conditions: The international community will place a number of demands on Pakistan, given the latter's negligent nuclear history and the offensive nuclear posture today. For one, it would have to separate its civilian and military facilities, like India did, as part of a potential deal with the IAEA, leading to a less feverish production of fissile material by

Pakistan, thereby producing fewer nuclear warheads. Second, it may be asked to accept restrictions on its weapons programme, materially and doctrinally – such as giving up the policy of early use of nuclear weapons in a conventional conflict with India. Third, Pakistan will have to give up its opposition to FMCT negotiations as a precondition for the deal.

A recent Stimson-Carnegie report on a potential US-Pak nuclear deal identified five initiatives that Pakistan may have to undertake to mainstream itself into the global nuclear order: shift declaratory policy from a "full spectrum deterrence" to "strategic deterrence";

commit to a recessed deterrence posture and limit production of short-range delivery vehicles and tactical nuclear weapons; lift Pakistan's veto on FMCT negotiations and reduce or stop fissile material production; separate civilian and military nuclear facilities; and sign the CTBT, without waiting for India to do the same. Reports also

indicate that there is a great deal of concern in Rawalpindi about a nuclear deal with the US since the Pakistan Army considers many of the preconditions conveyed to Pakistan to be harmful to its interests.

Finally, unlike what some Indian analysts argue, a

US-Pakistan civilian nuclear deal will make absolutely no difference to India's national security interests. Indeed, if some of the conditions identified above can be imposed on Pakistan in the process of the negotiation process, which is likely to happen, that would be a bonus for us. One concern is that such a deal will enable Pakistan to make more nuclear warheads. But even without a nuclear deal, Pakistan has more nuclear warheads than India. India, if it chooses to, can outpace Pakistan, but it has wisely chosen not to.

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However, if New Delhi's concern is about a 'status equivalence' with Pakistan, it should note that the India-US deal imposes hardly any conditions on India, unlike what is likely to be the case with a US-Pakistan deal.

New Delhi should therefore, offer conditional support to Pakistan's inclusion in the global nuclear order. We must, however, ask the US and other stakeholders to press Islamabad to stop stalling the FMCT negotiations, and agree to a nuclear 'No-first-use' agreement with India, which is already part of the Indian doctrine. Firm commitments should also be sought from Pakistan on clamping down on terrorism in the country in order to reduce the likelihood of nuclear terrorism in the region. Moreover, India should insist that Pakistan, as part of the deal, should be asked to negotiate nuclear CBMs with India without linking them to conventional arms control.

Source: <http://www.thehindu.com/>, 16 October 2015.

OPINION – Mel Deaile, Al Mauroni

Why We Still Need a Nuclear-Armed Cruise Missile

"History does not repeat itself, but it does rhyme," Mark Twain is reported to have said. Two years ago, also at *War on the Rocks*, Elbridge Colby responded forcefully to an op-ed calling for the elimination of the Air Force's nuclear-armed Long Range Standoff (LRSO) missile that is to replace the existing nuclear-equipped cruise missile, the AGM-86 (also known as ALCM). Today, it appears we need yet another defense of the LRSO, a program vital to US national security and deterrence posture. In a recent op-ed in the *Washington Post*, former Defense Secretary William Perry and former defense acquisition official Andrew Weber called on President Obama to defund the LRSO, reiterating many of the talking points of two years ago. The strategic environment

has only worsened since then, making the need for LRSO even more acute.

Perry and Weber believe that stealth bombers with direct-attack nuclear munitions are sufficient for the bomber leg of the nuclear triad, and that stealth bombers negate the need for cruise missiles. They make an unsupported claim that developing a nuclear cruise missile is not affordable in today's budget environment. Finally, echoing previous arguments, the two make the statement that dual-capable cruise missiles are

The reality is that cruise missiles are still an essential part of the US arsenal. No bomber, no matter how stealthy, is completely invisible to radar; expendable, high-volume dual-capability cruise missiles will be critical in the increasingly hostile anti-access/area-denial (A2/AD) threat environment.

inherently destabilizing. History does not support this claim. Since the Gulf War, the US military had possessed a dual-capable version of the AGM-86. In fact, all three of the last major air campaigns the US military has engaged in – Operation Allied Force in

Yugoslavia, Operation Enduring Freedom in Afghanistan, and Operation Iraqi Freedom – began with salvos of conventional dual-capability cruise missiles (the Air Force's AGM-86 and the Navy's Tomahawk). No one misinterpreted those actions or the intent of the United States.

Furthermore, in each of these conflicts, the United States flew direct-attack sorties with the B-2 stealth bomber – but only after launching cruise missiles against command and control or integrated air defense targets. The reality is that cruise missiles are still an essential part of the US arsenal. No bomber, no matter how stealthy, is completely invisible to radar; expendable, high-volume dual-capability cruise missiles will be critical in the increasingly hostile anti-access/area-denial (A2/AD) threat environment.

When President Obama made his 2009 Prague speech, he stated, "As long as these weapons exist, the United States will maintain a safe, secure, and effective arsenal to deter any adversary, and guarantee that defense to our allies." Deterring our adversaries and assuring our allies was a central premise of Obama's message. The nuclear deterrence capability of this nation

and its ability to extend that deterrence rests on acquisition of LRSO. The AGM-86 became operational in the early 1980s when the most advanced SAM systems were focused on America's pre-stealth fighter aircraft fleet. The second-generation AGM-129 Advanced Cruise Missile (which incorporated some stealth technology) has already been scrapped.

While the AGM-86 will be operational until 2030, its penetration capability against advanced SAM systems will continue to decline. As the radar cross-section of our aircraft decreased, the systems that sought to target them became more advanced.

Today, anti-aircraft (and missile) systems are not only more advanced but have proliferated. Russia recently announced it was giving S-300 SAMs to Iran. Meanwhile, it is important to consider the ages and capabilities of our aircraft. The B-52 is programmed to remain in active service well into 2040; even the B-2's 1990s-vintage stealth technology will eventually be overtaken. Coupled

with this, the Air Force has decided that the next-generation stealth bomber will be fielded with conventional capabilities first and nuclear capability to follow. In the next 10 years, our airborne strategic deterrent will rely on a 1980s missile launched from a 1960s bomber or a 1990s penetrating bomber going against the most advanced

SAM systems. All of this happens as the nation waits for the next-generation stealth bomber to gain nuclear capability. This is why the United States needs the LRSO. It will keep the airborne strategic deterrent viable and serve as a capable hedge.

Deterrence and assurance only work if the US military can hold all necessary targets at risk. A2/

AD advances make it harder for our forces to reach their targets and our inattention to these limitations makes it harder to convince our allies that we can

and will come to their defense in an emergency. Most importantly, dual-use aircraft and missiles allow us the greatest deterrent flexibility. In contrast to the widely-accepted salvos of conventional cruise missiles with which we have

begun military operations from the 1990s onward, any ballistic missile launch would unambiguously escalate a conflict. The LRSO's attackers also fail to account for its importance as a hedge vis-a-vis submarine-launched and intercontinental ballistic missiles. Should either of these legs be subject to technological failure or decreased capability, a flight of 30 B-52s armed with 20 LRSO missiles each would give the STRATCOM commander 600 warheads at the ready. Furthermore, under New START accounting rules, the 600 warheads would only count as 30 deployed weapons.

"Killing the missile" as Perry and Weber suggest would severely weaken one leg of our nuclear

deterrence triad. Without the LRSO, adversaries would only have to defend themselves against submarine-launched or intercontinental ballistic missiles, plus the weakening capabilities of our existing bombers and AGM-86 cruise missiles. Specifically, in cases of limited nuclear escalation scenarios, adversaries might believe that the US government has no realistic

course of action if limited to those weapon systems. It defies logic to claim, as Perry and Weber do, that our current bombers and missiles offer sufficient penetrating capabilities. In highly contested airspace, these put more US personnel at risk and do not guarantee a successful strike. President Obama himself has promised to maintain

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a credible deterrent and to field forces that will assure our allies. No matter how many recycled arguments its opponents marshal against it, the need for a next-generation nuclear-capable cruise missile make the LRSO a necessity in the face of the aging of our current offensive systems and the proliferation of sophisticated A2/AD defenses.

Source: <http://warontherocks.com/> , 26 October 2015.

OPINION – Ami Bera, Richard M Rossow

Iran's Nuke Deal Good for India's Ties with US, UNSC Bid

The Iran nuclear agreement and the prospect of a reduction in Iran's nuclear capability have important implications for America's relations with India. The timing is relevant as momentum builds in the UN to modernise the structure of its UNSC, with the possibility of a more powerful role for India. The nuclear deal must be primarily viewed through the lens of how it affects Iran's nuclear programme and regional stability. But the deal will also have important effects on countries that are not directly threatened by an unfettered Iranian nuclear programme. India figures prominently on such a list of countries.

India's policy of "non-alignment" has allowed it to maintain relations with many nations. Today, India-Iran relations are defined largely by energy, diplomacy, and investment. Iran remains a top petroleum supplier to India. There is a regular stream of high-level visits between the two countries. In May, India signed a new contract for the development of two terminals in Iran's Chabahar port to secure connectivity with

Afghanistan. In August, two Indian naval ships spent five days in Iran, conducting joint exercises and other activities. India seeks to enhance its energy imports from Iran to include natural gas, looking at overland, undersea, or oversea options. India is also reviving plans to develop a government-led fertiliser plant in Iran.

However, India's support for Iran in recent years can sometimes be over-stated. India has been reducing its oil imports from Iran, voted in concert with the US on Iran-related votes in the IAEA, and has slowed its work at Chabahar in Iran. These steps have given increased confidence to US policymakers that a deeper strategic partnership with India is possible, which helps open the door

to deeper cooperation in areas such as defence and civilian nuclear cooperation. As the UN looks to reform the UNSC, India covets a larger role. The decision in September to initiate text-based negotiations on UNSC reforms has been greeted by the Indian government.

However, other nations including some existing UNSC members, or rivals of those countries that are likely to be considered, have reservations about expanding the UNSC. American support for national bids to join the UNSC will be critical, and it is far easier to make the case for a country's inclusion if it is already contributing to international

security, and if it is not supporting regimes that the US opposes. Removing Iran as a possible obstacle is helpful in this regard. India's continued relations with Iran, paired with growing relations with Israel, offers it an opportunity to use access to both capitals to help ensure the deal's success.

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A successful implementation of the Iran nuclear agreement should be very good for US-India relations. It will allow India to play a direct role in Afghanistan's future through the development of the Chabahar port; it will help secure additional energy for India; and it will remove a regularly cited obstacle to strengthening US-India strategic relations.

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relations. It will allow India to play a direct role in Afghanistan's future through the development of the Chabahar port; it will help secure additional energy for India; and it will remove a regularly cited obstacle to strengthening US-India strategic relations. We are also hopeful that refreshed India-Iran relations will help Iran maintain a pathway that does not serve to destabilise an already volatile region. In the light of recent progress in reforming the UN Security Council, the timing could not be better.

Source: <http://www.hindustantimes.com/> , 20 October 2015.

OPINION – Farhang Jahanpour

The Nuclear Deal's Impact on Iranian Domestic and Foreign Policy

As in most countries, in Iran too there are hardliners and moderates. All polls show that a large majority of Iranians support the nuclear deal (or Joint Comprehensive Plan of Action, JCPOA) between Iran and the P5+1, while a small but powerful group of hardliners opposes it. The Iranian parliament has finally approved the deal, but after a great deal of controversy and with some reservations.

Despite the fact that in the 2013 presidential election, in which 72 per cent of eligible voters participated, more than half of the electorate voted for Hassan Rouhani, a centrist and moderate cleric, hardliners have a tight grip over practically all other branches of power in Iran. Hardliners control the judiciary, and have a majority in the current Majles or Iranian Parliament. They control the Assembly of Experts that has the power to elect the Supreme Leader's successor, the Guardian Council that acts as a second chamber, the National Broadcasting Organization that has a virtual monopoly of all radio and television broadcasting, and many other

organizations. However, with President Rouhani's election, the dominance of hardliners over the executive branch came to an end, and elections for parliament and the Assembly of Experts are due on 26 February 2016, and they could alter the internal balance of power. The nuclear agreement has begun to swing public support back to the reformists.

After the initial revolutionary upheaval that isolated Iran from most of the world, and after 36 years of estrangement from the West, this landmark agreement has ushered in a new era of relations between Iran and the West. While most analysts in the West are primarily concerned about its effect on Iran's foreign relations, for most Iranians its significance lies in what it can do to improve the economic and political situation at home.

The fact of the matter is that Iran has made many concessions, but its nuclear program has received the seal of approval from the Security Council and the West. Even above and beyond the nuclear issue, the JCPOA has opened the prospect of the reintegration of Iran into the global economy and of it playing a much more prominent role in world affairs. This is precisely what the hardliners fear, because they are worried that Iran's revolutionary values would be undermined and that Western values would weaken Islamic sentiments. Iran's powerful Revolutionary Guards chief warned of "nuclear sedition," aimed at derailing the Islamic Republic from its revolutionary path. Iran's Supreme Leader Ayatollah Ali Khamenei has also warned against "infiltration" attempts by the West and has banned further negotiations with Washington. The main question is whether Iran still wishes to remain in the past and retain its revolutionary zeal, or whether she feels confident enough to look

Hardliners control the judiciary, and have a majority in the current Majles or Iranian Parliament. They control the Assembly of Experts that has the power to elect the Supreme Leader's successor, the Guardian Council that acts as a second chamber, the National Broadcasting Organization that has a virtual monopoly of all radio and television broadcasting, and many other organizations. However, with President Rouhani's election, the dominance of hardliners over the executive branch came to an end.

forward and embrace change. It is quite clear that the majority of Iranians have shown that they are in favor of change and coexistence with the rest of the world, while also retaining their distinct religious and cultural values.

Most Iranians are strongly opposed to regime change in the way that has happened in a number of neighboring countries.

They are in favor of evolution and reform, rather than revolution and violence. Nevertheless, they have a number of legitimate demands that cannot be suppressed by force. President Rouhani pledged repeatedly during his campaign to expand political and social freedoms for all Iranians, including freedom of expression. Although some restrictions have been eased, the pace of change has been far too slow. Iran still has one of the largest numbers of executions per capita in the world, and one of the highest numbers of political prisoners. Iranian women still do not enjoy equality with men. It is true that the government does not have much control over the judiciary or security organizations, but it cannot use this excuse to shirk its responsibilities towards the Iranian people. It must understand that the maintenance of the status quo is not an option. If change is not to be imposed through violence or from outside, the government with the support of the majority of the population must bring about meaningful change.

The JCPOA has opened new horizons for Iran. In the foreign policy field, it has lifted the shadow of war and has made Tehran the diplomatic and economic capital of the Middle East. Now, it is time for Iranian leaders to begin a new chapter of relations with the world. As Ambassador John Limbert, a former US Deputy Assistant Secretary of State for Iran and a former US hostage during the Iranian hostage crisis, has said: "Both sides,

after 34 years, have made a very startling discovery, that diplomacy -long-neglected tools of listening, of seeking small areas of agreement, of careful choice of words - can actually accomplish more than shouting insults, making threats and the wonderful self-satisfaction of always being right."The same principle also applies to the domestic situation.

Iranian leaders will be surprised to see how much small areas of agreement and small but steady steps towards greater freedoms and democracy can accomplish in putting an end to the alienation between the people and the government, and allow Iran to find its rightful place in the world, and avoid the chaos rampant in many neighboring countries. It is time to use this great opportunity to move forward both at home and abroad, confident in the common sense and patriotism of Iranian people.

Source: <http://www.ipsnews.net/>, 19 October 2015.

STATEMENT

Ratan Kumar Sinha, Chairman of the AEC at the 59th General Conference, IAEA

Mr. President, I am happy to share some highlights of the progress achieved in the Indian nuclear programme, since the previous General Conference. Our utility, NPCIL, has achieved the highest ever generation of electricity in the financial year 2014-15, with a Capacity Factor of about 82% and Availability Factor of 88%. The first unit of the KKNPP-1, built in collaboration with the Russian Federation, started commercial operations from December 31, 2014, taking the country's installed nuclear power generation capacity to 5780 MWe. The second unit at Kudankulam is in an advanced stage of

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commissioning. Indian nuclear power plants continue to register records of long continuous runs. Recently, Narora Atomic Power Station Unit-2 crossed 500 days of uninterrupted operation and is continuing to operate. Till date, the Indian nuclear power reactors have recorded continuous runs exceeding one year on twenty occasions.

Following the completion of construction of the 500 MWe PFBR its commissioning is in progress. At present the reactor is gearing up for loading its coolant – sodium. Construction work is progressing on four indigenous 700 MW Pressurised Heavy Water Reactors. In addition, 16 reactors of similar capacity are planned to be set up in already identified locations. Plans for further expansion of nuclear power generation capacity through imported LWRs are progressing and techno-commercial negotiations with identified vendors, including localisation of manufacture involving Indian industries, are underway.

Mr. President, The performance of several Indian fuel cycle facilities continues to reach higher levels every year. At the Nuclear Fuel Complex (NFC) the annual production of nuclear fuel for PHWRs achieved an increase of 30% over the production figures for the previous year. Annual domestic production of uranium also recorded its highest ever figure. In my Statement to the General Conference last year, I reported on the technology developed for the removal of Caesium-137 and its conversion to vitrified pencil sources for low-dose rate applications. During the current year, we have separated large quantity of Caesium-137 from High Level Liquid Waste (HLLW) using an indigenously developed process, and the first lot of pencils of vitrified

Caesium-137 was produced at the BARC and delivered to the Board of Radiation and Isotope Technology (BRIT) for use in the indigenous blood irradiators. This technology is being used for the first time in the world in commercial domain.

During the current year, we have separated large quantity of Caesium-137 from High Level Liquid Waste (HLLW) using an indigenously developed process, and the first lot of pencils of vitrified Caesium-137 was produced at the BARC and delivered to the Board of Radiation and Isotope Technology (BRIT) for use in the indigenous blood irradiators. This technology is being used for the first time in the world in commercial domain.

India continues to attach high priority to all aspects of Thorium related reactor and fuel cycle technologies. In the month of January this year, the newly constructed Power Reactor Thoria Reprocessing Facility (PRTRF) started the reprocessing of thorium

oxide fuel bundles irradiated in our PHWRs earlier. India is hosting the International Thorium Energy Conference (ThEC15) in Mumbai next month.

Mr. President, Our State-owned General Insurance Corporation-Reinsurer (GIC-Re) and several other Indian insurance companies came together in June 2015 to launch an Indian Nuclear Insurance Pool (INIP). The INIP will initially launch the insurance product for NPCIL to cover the operator's liability under the provisions of the CLND Act 2010. A separate product will be subsequently launched to cover the risks of the suppliers under this Act. This is expected to address liability related concerns of national as well as international suppliers. Mr. President,

India greatly values its association with the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO). India believes that the INPRO methodology provides an important tool for the evaluation of new advanced safety features of the next generation nuclear power plants.

In March this year, the IAEA's Integrated Regulatory Review Services (IRRS) mission conducted the peer review of the nuclear power related regulatory activities of the AERB. The IRRS team appreciated the AERB's actions and initiatives taken as a follow-up of the Fukushima accident related

reviews, and identified a number of good practices, recommendations and suggestions. We are in the process of implementing those recommendations and suggestions. India greatly values its association with the International Project on Innovative Nuclear Reactors and Fuel

Cycles (INPRO). India believes that the INPRO methodology provides an important tool for the evaluation of new advanced safety features of the next generation nuclear power plants.

Mr. President, In the opening session of this Conference, DG, IAEA made an important statement highlighting the role of nuclear in addressing the green house gas emission and associated climate change. Indeed, from this perspective, nuclear power has to be a very prominent component in the global energy-mix to meet the growing energy demands of the world. In order to facilitate assessment of a country specific optimum energy mix, it is, however, important to address the question of system-effects, in particular those arising out of grid-connected variable energy sources, along with mainly base load energy sources such as nuclear. Such system-effects may have an impact on reliability and long term economic viability of such energy systems. The IAEA may consider facilitating the development of a standard methodology to assess the aforementioned system-effects.

Mr. President, during the last decade, Gamma-Ray Astronomy has emerged as an important tool for understanding the high energy processes in the Universe. India is setting up one of the largest gamma-ray telescopes MACE (Major Atmospheric Cherenkov Experiment) at Hanle, a high altitude (4200m above the sea level) astronomical site in the Ladakh region of North India. The Indus-2 synchrotron radiation source at Raja Ramanna Centre for Advanced Technology at Indore has been operating round the clock. With the

commissioning of a soft X-ray reflectivity beamline, the total number of operational beamlines on Indus-2 has increased to thirteen. As a result, the number of researchers and students using the Indus beamlines has doubled over the past two years. In the field of fusion

science, Steady State Superconducting Tokamak (SST-1), at Institute of Plasma Research (IPR), Gandhinagar, Gujarat, has become operational with repeatable plasma discharges up to ~ 500 ms duration and plasma currents in excess of 60 kA. SST-1 is the only tokamak in the world,

where the superconducting Toroidal Field Magnets are operated in two-phase helium demonstrating reduced cold helium consumption.

Mr. President, Nuclear applications beyond power and associated technologies, in the area of health-care, water, industry and environmental protection continue to expand, delivering important benefits to our society. India appreciates the Director General of IAEA for choosing the theme of 'Atoms in Industry: Radiation Technology for Development' for the Scientific Forum this year. India has a large programme in this area, and has

also been the Lead Country in the Industry sector for the IAEA Regional Cooperation Agreement (RCA) Programme for several cycles.

In this context, I would like to draw your attention to the exhibition set up by India on our indigenous technological capabilities

and contributions in the development of industrial applications. I cordially invite all delegations to visit our exhibition in the Rotunda. India has been a strong advocate of the IAEA's Programme of Action for Cancer Therapy (PACT). Tata Memorial

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India has been a strong advocate of the IAEA's Programme of Action for Cancer Therapy (PACT). Tata Memorial Centre (TMC), an autonomous institution under DAE, provides the most appropriate and cost-effective technologies in implementing cancer care programmes, most suitable for developing countries consistent with their infrastructural resources.

Centre (TMC), an autonomous institution under DAE, provides the most appropriate and cost-effective technologies in implementing cancer care programmes, most suitable for developing countries consistent with their infrastructural resources. Objective staging of cancer is crucial for deciding on effective treatment options. TMC, along with the IAEA and RCA, has developed a smart phone App for Cancer Staging. This TNM (Tumour, Node, Metastasis) App will facilitate harmonised communication approach among the multi-disciplinary team in staging of patients, and in turn, delivering better cancer care to patients. As I speak, the App is being launched in a GC side-event organised by IAEA and the Embassy of India. We thank IAEA for the opportunity given to India to contribute to this important development of high value for all countries.

Mr. President, as part of implementation of the Arrangement with the IAEA concerning India's voluntary contribution to the Nuclear Security Fund, the services of an Indian costfree expert in information security are being provided to the Division of Nuclear Security of the IAEA. In the same context, and under the auspices of the GCNEP initiative, training events were conducted covering the topics on "Natural Circulation Phenomena and Passive Safety Systems in Advanced Water Cooled Reactors"; "Vulnerability Assessment for Nuclear Material Security"; "Information and Computer Security for Nuclear Facilities"; and "Physical Protection of Nuclear Material and Nuclear Facilities". India continues to actively participate in Regional Cooperation Agreement (RCA) Programmes of IAEA making significant contributions.

In the last one year, two RCA related events were hosted by India, in which 22 IAEA Member state delegates participated. The services of several Indian Scientists and Engineers were made available to the Agency to carry out the expert

assignments. India also continues to participate in a large way in the IAEA's Co-ordinated Research Programmes (CRP's). Currently, Indian institutions are engaged in 65 CRPs. India hosted a 6-day IAEA Inter-regional Training Course related to production of Molybdenum-99, and will be hosting two more events in November this year. India appreciates the efforts of the DG of IAEA in modernising the nuclear applications labs in Seibersdorf and the progress made in the ReNuAL project.

Mr. President, I have been keeping the General Conference informed about the Indian studies on the health effects of low dose radiation. I wish to update that the DAE is continuing its extensive studies on the biological and health effects of low dose and low dose rate radiation in the high level natural radiation areas (HLNRA) of Kerala coast.

The findings do not reveal any effect of this high level radiation on human population residing in this area. Apart from epidemiology, biological studies in human peripheral blood mononuclear cells using end points such as chromosome aberration, micronuclei, telomere length and DNA strand breaks did not show any dose response.

Furthermore, and most interestingly, radio-adaptive response studies revealed significant reduction of DNA strand breaks in HLNRA

individuals, even with higher challenging doses. Repair kinetics showed fast and efficient repair of DNA strand breaks in HLNRA individuals, as compared to individuals from normal level natural radiation areas (NLNRA) 7 suggesting in vivo adaptation. Global gene expression analysis revealed abundance of differentially expressed DNA damage response and repair genes in HLNRA individuals, in response to chronic low dose radiation exposure. Further scientific studies on DNA damage and repair at low and high doses are underway using double strand break specific markers. Investigating the role of adaptive response and gene regulation is in progress to

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delineate the mechanistic effect of low dose radiation, which has important implications for radiation protection science and human health.

I once again suggest that the IAEA should take the lead in this direction, along with other international bodies, by organising scientific discussions to arrive at a consensus on the current state of understanding on the effect of low dose radiation on human health, and identify any residual gap areas that need further research.

Mr. President, the 59th session of IAEA General Conference is taking place four and half years since the Fukushima-Daiichi nuclear accident. IAEA has commendably brought out its report on the accident describing what went wrong and the lessons one can draw for the future. It is time that we move beyond the shadows of Fukushima and work to harness the true potential of nuclear energy as a credible and affordable energy resource to lead the world to a greener growth path. We count on IAEA's leadership to realise that vision. ...

Source: <http://www.dae.nic.in/>, 16 September 2015.

BALLISTIC MISSILE DEFENCE

USA

Upgraded GaN AESA Radar for Patriot Missile Defense System Moves Forward

The enhancements include upgrading the Patriot radar main array with Gallium Nitride- (GaN) based Active Electronically Scanned Array (AESA) technology. Raytheon is performing the upgrades with internal funding. Raytheon engineers are currently constructing a GaN-based AESA full size main panel radar array and are on track to having a full-scale main array demonstrator operational in early 2016. "The Raytheon-developed GaN-based AESA radar builds on the more than \$150

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Raytheon's GaN-based AESA Patriot radar will work with future open architectures as Integrated Air and Missile Defense Battle Command System and it also maintains backwards compatibility with the current Patriot Engagement Control Station. It is fully interoperable with NATO.

million invested in GaN technology, and will be a simple upgrade for the more than 220 Patriot fire units fielded by the US and the 12 other Patriot partner nations," says Ralph Acaba, Raytheon Integrated Defense Systems business vice president of Integrated Air and Missile Defense. "This upgrade is approved for export to all current Patriot partners and a number of future Patriot partner nations such as Poland." It will reduce operation and maintenance cost by as much as 50 percent, he adds.

The GaN-based AESA Patriot uses three antenna arrays mounted on a mobile radar shelter to provide 360-degrees of radar coverage. The main AESA array is a bolt-on replacement antenna for the current Gallium Arsenide based antenna. The GaN-based AESA array measures roughly 9 feet wide by 13 feet tall, and is oriented toward the primary threat. Patriot's new rear panel arrays are a quarter the size of the main array and enable the system look behind and to the sides of the main array, allowing Patriot to engage threats in all directions. Earlier this year, Raytheon experts built a GaN-based AESA Patriot rear-panel array, integrated it with the current Patriot radar using the existing, recently upgraded, back-end processing hardware and software, and tracked targets of opportunity to create a 360-degree view.

The recently accomplished engineering milestones include: Completing construction of the AESA main array structure. Constructing the AESA arrays' radar shelter. Integrating receivers and a radar digital processor into the radar shelter. Delivering the shelter to Raytheon's test facility in Pelham, N.H. Testing the radar's cooling sub-system. Raytheon's GaN-based AESA Patriot radar will work with future open architectures as Integrated Air and Missile Defense Battle Command System and it also

maintains backwards compatibility with the current Patriot Engagement Control Station. It is fully interoperable with NATO.

Source: <http://mil-embedded.com>, 19 October 2015.

USA-JAPAN

US Deploys Advanced Missile Defense Ship to Japan

The United States deployed one of its most advanced ballistic missile defense warships to Japan on 19 October as part of the Obama administration's rebalance toward the Asia-Pacific region. The USS Benfold berthed at Yokosuka, Kanagawa Prefecture, where it joins seven other destroyers. Its missions may include guarding the US and its allies against ballistic missiles launched by North Korea, a senior officer said on condition of anonymity. The destroyer has 90 vertical-launch missile tubes and one of the world's most advanced rocket-tracking capabilities, the Aegis Baseline 9 system. ...

The deployment comprises part of the ongoing US rebalance toward Asia, said a spokesman for the US Navy in Japan. "As evidenced by Benfold's arrival today, and (USS) Ronald Reagan a couple of weeks ago, we are putting the most advanced ships and aircraft out here," said Cmdr. Ronald Flanders, spokesman for Naval Forces Japan. "We're going to have 60 percent of our navy in the Pacific." Launched in 1994, the Benfold, an Arleigh Burke-class destroyer, has recently been refitted with cutting-edge weaponry. In addition to its ballistic missile defense system, it has torpedoes, anti-ship missiles and video-

targeted cannons controlled by joysticks from the bridge.

Source: <http://www.japantimes.co.jp/>, 19 October 2015.

NUCLEAR STRATEGY

PAKISTAN

Islamabad Moves Closer to Total Disclosure over Nuclear Weapons

It has been more than 17 years since Pakistan detonated five nuclear warheads, in a tit-for-tat exchange with India that announced weapons of mass destruction were now part of the South Asian strategic theatre. Since then, very little has been made public about the underlying philosophy of Pakistan's programme. In fact, the sole stated

"known" is that Pakistan has refused to embrace the no-first-strike commitment made by India, on the ground that Pakistan's strategic weapons exist to discourage India from using its conventional military superiority to overwhelm it. That position was taken in 2001.

Until recently, the only other information in the public realm was gleaned from Pakistan's ballistic missile tests. For example, its tests two years ago of short-range missiles revealed they would be used, in theory, against an Indian force that had seized a strategically

important parcel of Pakistani territory. However, it has never been specified which parcels of territory would qualify under that inferred criterion. Pakistan's so-called "red lines" – events that would trigger a nuclear weapons launch – are unstated and the subject of conjecture. Security analysts have learnt of no more than three such

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scenarios and they are statements of the obvious for those familiar with recent history. One involves the loss of the so-called Ravi-Chenab corridor, which includes the eastern metropolis of Lahore, parts of which are less than 10 kilometres from the border with India, and the satellite cities of Gujranwala and Sialkot.

Another nuclear trigger would be the loss of half of Pakistan's fleet of US-made F-16 warplanes, because the technological edge they provide, on paper, guarantees it superiority in its own airspace. A third would be a blockade of Karachi and Bin Qasim ports, Pakistan's only maritime logistical hub – but that red line is fast fading because of China's construction of a third port at Gwadar, far from India's maritime borders. Against that backdrop, and that of annual upward revisions of estimates of the number of Pakistan's nuclear warheads, there have been occasional outbursts of alarm in the US media, reflecting how little is actually known. Subtly, that situation has begun to change.

In June, a US-Pakistan working group issued a statement about their shared desire to ensure the security of Pakistan's nuclear arsenal and steps Pakistan had taken to prevent even unintentional proliferation of its technology. Then, in August, the Carnegie Endowment for International Peace and the Stimson Centre proposed that Pakistan's strategic programme should be accepted and brought into the global non-proliferation scheme, in exchange for its commitment to a ceiling on the number of warheads it would produce and the range of its ballistic missile delivery platforms. In October, *Washington Post* columnist David Ignatius disclosed that Carnegie's proposals had, in fact, been adopted by the Obama administration and offered to Islamabad. The veracity of the disclosure was confirmed, by inference, in a statement issued after a meeting of Pakistan's civilian and military leadership held the next day

and, the following day, by the White House.

But a deal is not imminent. Indeed, Pakistan's leadership had appeared to turn down the offer outright. It said it would continue to work towards the development of a full-spectrum nuclear arsenal – one with the ability to launch weapons from the air, land and sea. India and Pakistan both have the air and land platforms, and India is now testing its first nuclear-powered, nuclear-armed submarine, which would give it an edge Pakistan could only blunt if its ally China agrees to transfer its "boomer" technology that allows subs to be armed with nuclear strike missiles. This is unlikely, since China has chosen not to deploy its own emerging fleet in the western Pacific.

On 21 October, however, 24 hours before Prime Minister Nawaz Sharif's meeting with Barack

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Obama, Pakistan's press, quoting the same unnamed official sources, reported the government's position was markedly different to the long-perceived policy of zero compromise. It would not accept limits on the number of tactical battlefield warheads, it was reported. No mention

was made of other types of devices, the strong hint being that a compromise could be reached on those, eventually, if India were prepared to make a matching commitment. That is, by far, the biggest shift in – and disclosure of – Pakistan's nuclear doctrine since the 1998 tests.

Indeed, the US offer is a significant development in as far as it underlines its belief that Pakistan's nuclear programme is not the leaky sieve it had been up to December 2003. That is when AQ Khan, the founder of the programme, was caught in the act of selling used uranium enrichment centrifuges to the Qaddafi regime in Libya, which disclosed the transaction as part of its short-lived rapprochement with the West. He also sold designs for uranium-enrichment centrifuges to Iran and North Korea. It would appear Pakistan has

taken the first steps towards joining the global non-proliferation regime. Nobody is suggesting a breakthrough will happen soon, but in a world increasingly characterised by regional conflicts, Pakistan's willingness to negotiate is an encouraging sign that responsible attitudes are being adopted.

Source: <http://www.thenational.ae/>, 25 October 2015.

RUSSIA-INDIA

Russian Missile "Umbrella" to Bolster Indian Air Defence: Experts

India plans to buy the S-400 'Triumf' advanced anti-aircraft missile systems from Russia. According to the newspaper The Times of India, India's Defence Ministry will consider a proposal to buy around ten S-400 systems. Delivery dates have not been specified. The RS S-400 "Triumf" is designed to knock down aerodynamic flying targets (tactical and strategic aircraft, jammers, such as the AWACS and aerodynamic missiles), including those equipped with stealth technologies, at a distance of about 400 kms. It can also take out ballistic missiles, hypersonic targets and current aerial threats. Compared with its predecessor, the S-300, the new S-400 'Triumf' has a 2.5 times faster firing rate. This is the most modern, far-reaching air defence system in the Russian arsenal. The Almaz-Antey Concern is already working on the next generation system, the S-500 but those are not ready for mass production.

"Long Arm": India needs a modern and effective air defence system. The purchase of the S-400 systems will radically change the face and structure of the country's defence capabilities.

According to Oleg Zheltonozhko, an independent expert, the combat capabilities of the S-400 are strongly based on its complement of different types of missiles. The most important are the "long arm" 40N6E missiles, with a strike range up to 400 kilometres, up to a height of 185 km (near space), which have just been completed. With these missiles, the S-400 acquires the properties of a local missile-defence system.

However, whether these missiles will be included in the S-400's export version is not confirmed. Even without the "long arm" in the export version,

Zheltonozhko is certain that, given India's geographic extent, by using the S-400 systems, its military can create a comprehensive defence system that will not only cover threatened areas, but the entire country. This would be so if 10-12 divisions are supplied (one division includes eight

launchers, and appropriate means for detection and control, the composition of which may vary). "India is not in a position to develop its own anti-aircraft system of this level, but requires a modern air defence system.

Current and potential conflict zones are located

extremely close to India," Oleg Zheltonozhko told RIR. If India buys the S-400 system from Russia, it will restore the military balance in the region, balancing the growing military might of China, which was the first foreign buyer of the S-400 missile systems, earlier

this year. China will get six such systems by 2017, for an estimated three billion dollars. China's procurement of the S-400 will enable it to dominate the skies. Indian air defence systems, on the other hand, are increasingly inadequate to meet the country's strategic requirements. The proposed deal between Russia and India will,

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therefore, restore some parity in the region, rather than disturbing the balance of power. ...

India's primary objective in acquiring the S-400 appears to be driven by the country's need for an anti-ballistic missile system. The assumption is that the S-400 systems can intercept missiles from Pakistan, and less so, from China. Given that China has long-range ICBMs, the ability to successfully intercept Chinese missiles may not be realized. Procurement of the S-400 is significant for short and medium-range ballistic missile threats that India faces from Pakistan, in the regional context.

More Than the Economic Benefit: Russian medium-range air defence weapons, both land and sea-based (like Pantsir, Buk, Tor, and Strela) are popular with foreign buyers, and in service in many countries. The sale of S-400 Triumf systems to such significant partners as India and China will help Russia gain a stronger foothold in the niche market of long-range missiles. In addition to economic benefits, that the S-400 has been bought by two large countries will provide Moscow a military-political "bonus," in the form of a possible coordinated air defence/missile defence system for the entire continent.

The spread of Russian air defence systems will lead to improved military cooperation between Russia, India and China, says Zheltonozhko. The sale of the 'Triumf' to these countries makes it possible to "de facto" create a Eurasian continent-wide defence system, and facilitate interlinking of air defence systems of Russian origin in other segments (medium and short-range defence), not just in China and India, but also in third countries. Likely acquisition of

the S-400 by the Indian Defence Ministry is still at an initial stage. Since delivery times are being

called "lightning fast," the wait for them may be short. However, limited production capacity has not allowed Russia to produce all the S-400 systems it needs. Russian Aerospace Forces have 19 divisions now, which will be raised to 56 divisions by the end of 2020. Russia will need to find a

reasonable compromise between executing foreign contracts and fulfilling its own defence needs.

Source: <http://in.rbth.com/>, 16 October 2015.

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NUCLEAR ENERGY

CHINA

China Plans to Operate 110 Nuclear Power Plants by 2030

To meet the need for clean energy, China announced its target of operating 110 nuclear power plants by 2030. The country eyes to build six to eight plants yearly for the next five years. A total of 50 billion yuan will be used as an

investment for the domestically developed facilities, according to a report by the China Times. For Zhou Dadi, vice director of the China Energy Research Society, China has the capability to reach the said target. "After decades of development, China boasts advanced technology and valuable experience to build more nuclear power plants," he

remarked. According to the report, the government intends to increase China's electricity generation capacity to 58 gigawatts in five years' time. The figure is thrice the 2014 statistic.

The country eyes to build six to eight plants yearly for the next five years. A total of 50 billion yuan will be used as an investment for the domestically developed facilities, according to a report by the China Times. According to the report, the government intends to increase China's electricity generation capacity to 58 gigawatts in five years' time. The figure is thrice the 2014 statistic.

Meanwhile, the targeted 110 nuclear power plants are expected to overtake the number of plants operated by the United States. Back in 2011, the Chinese authorities have halted nuclear power plant approvals after the Fukushima accident in Japan. However, as pointed out by a nuclear safety expert, the urgent need for clean energy in order to reduce carbon dioxide emissions and meet increasing power demand has prompted the government to look into the development of nuclear ventures. Zhou revealed that China generates only around 2 percent of its electricity from nuclear power hubs, way below the global average of 14 percent. The official, nonetheless, noted that the government is beefing up its efforts to develop nuclear endeavours, citing that these projects can make China less dependent on imported energy like gas and oil. Zhou also assured that the Chinese government is giving great importance to the safety risks posed by nuclear power plants.

Source: <http://en.yibada.com/>, 17 October 2015.

INDIA

Concerns about Nuclear Liability Act 'Unwarranted': Jitendra Singh

Terming the concerns raised about the Civil Liability for Nuclear Damage Act (CLND) as 'misplaced' and 'unwarranted', Union Minister Jitendra Singh on 16 October that the Act is actually in the interest of the country. "I want to clarify that the concerns raised about the CLND are misplaced and unwarranted. It is not only in the interest of foreign investors but also in the interest of India and nobody has to actually worry for that," Singh, who is the MoSPMO, said at the India Nuclear Energy summit here.

Clauses in the CLND Act (2010), which gives the operator the Right to Recourse and allow it to sue

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the suppliers in case of any accident, were seen as being a major hindrance to the growth of the nuclear industry. He said to address these concerns the government has launched an insurance pool to the tune of Rs. 1,500 crore, which is mandatory under the CLND in a bid to offset financial burden of foreign nuclear suppliers. "The kind of follow up that has been done by the government through the nuclear insurance pool is in the operators interest. Their concerns are being looked after through this mechanism. "Therefore, it is not only in the interest of foreign operators but also in our interest to have made them secure. So, therefore, this should be a reassurance if anyone (operators) tends to say that the government has not adequately addressed the concern about the investors from overseas," he said.

Under the Rs. 1,500 crore pool, set up by General Insurance Corporation of India (GIC Re) and 11 other non-life insurers including New India, Oriental Insurance, National Insurance and United India Insurance from the public sector apart from private insurance companies, policies offered will be a nuclear operators liability insurance policy and a nuclear suppliers special contingency (against right to recourse) insurance policy.

Source: <http://www.prnewswire.co.in>, 16 October 2015.

Four India-Designed 700 MW Reactors being Built at Brisk Pace

Construction of four India designed 700 MW PHWR are progressing at a quick pace and the first one is expected to go on stream end 2016 or early 2017, said senior officials of NPCIL. The NPCIL is building two 700 MW atomic power plants each at KAPS in Gujarat and RAPS. For NPCIL that has been building 220 MW and 540 MW PHWRs, it is a major jump to go in for 700 MW PHWRs. "It

is the first of its kind reactor in the country," Lokesh Kumar, project director for the third and fourth units at KAPS told IANS over phone from Kakrapar in Gujarat on 19 October. The AERB, the sectoral regulator, is carefully poring over the reports submitted by the units before according its sanction. NPCIL has two units of 220 MW each at KAPS which are operating successfully. It is the third unit at KAPS with a capacity of 700 MW that is expected to go operational first out of the four under construction. "We are the torch bearers for this kind of reactor in the country now. Once the first unit goes on stream, it will be easy for other three," Kumar said.

Queried about the project status, he said: "We are in a crucial stage. The construction work is at its peak. We have energised the start-up transformer. The power system is ready for the unit that would go on stream." According to him, work on commissioning of the other systems have begun while the civil construction work is nearing completion.... He said stator installation work on the turbine will begin. "We plan to start unit 3 by the end of 2016 or early 2017. Then commissioning of unit 4 would happen," Kumar said. Concrete was first poured in November 2010 for the 3rd unit at KAPS and in March 2011 for the fourth unit.

Though the first unit was expected to go on stream in 2015, owing to erratic supply of components the progress of work got delayed, Kumar said. As to the percentage of physical progress, Kumar said the third unit is 75 percent complete and the fourth unit is 65 percent. "The overall project cost for the two units is around Rs. 11,459 crore. The project would be completed within the budget. There will be no cost escalation," he added. At RAPS where the other two 700 MW reactors are built at an outlay of Rs.12,300 crore, the preparatory work to install the coolant channels are on for the seventh unit under construction. "Welding of end shield and calandria is over. Preparation work for core components – coolant channels – has started. It will take six months to

complete," B.C. Pathak, project director for 7th and 8th units at RAPS, told IANS. He said the seventh unit was expected to go on stream sometime in 2017-18 and almost 57 percent of the physical work had been completed. The NPCIL already has six units at RAPS, with a total capacity of 1,180 MW (4×220 MW and one each of 100 MW and 200 MW). Ruling out any cost escalation, Pathak added: "We expect to complete the project within the budget. The softening of steel prices has resulted in lower escalation in costs." As for

the eighth unit, the overall physical progress was around 40 percent. "All the tenders have been finalised and contracts issued. There is no major tender that needs to be processed," he added.

The senior NPCIL official said both the upcoming units will share many common facilities like the

switchyard, control building and others. The other first of its kind reactor in India located at Kudankulam in Tamil Nadu is expected to restart power generation on October 30. The unit has been jumping restart deadlines. The first 1,000 MW unit at KNPP was shut down this June for annual maintenance. The unit was connected to the southern grid in December 2014. The unit was operating at 60 percent capacity for some time before it was shut down for annual maintenance. At the time of its shut down in June, NPCIL said the unit will restart after 60 days post annual maintenance and refuelling. The NPCIL is setting up two units at KNPP with Russian equipment. The second unit on which work has been completed to the extent of 98.50 percent is expected to start the fission process in December 2015.

Source: <http://www.newsgram.com/>, 20 October 2015.

PAKISTAN

Pakistan Not Entering Nuclear Deal with US: Sartaj Aziz

Advisor to Prime Minister on National Security and Foreign Affairs Sartaj Aziz on 18 October has said that Pakistan is not entering any deal with US and

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there would be no compromise over national security.... Aziz said that Pakistan could only reach an understanding if its interest is safeguarded. He said that Pakistan would not compromise on national interest and security. In a statement issued, the spokesperson has said, "No "deal" is being discussed between the two countries. Nor has the US made any demand on Pakistan. In any case, history is a testimony to the fact that Prime Minister Nawaz Sharif accepts no demand from any state. He firmly believes in policies directed at preserving, protecting and promoting Pakistan's national interests."

On the other hand, Special Assistant to PM on Foreign Affairs, Tariq Fatemi said that all outstanding issues including Indian aggression would be raised in the four-day US visit. He thrashed India saying that the neighbor has not responded positively on Pakistan's peace initiative for the region. He vowed to expose India on international level during US visit. Earlier, Aziz had put forth a rather solid stance and clearly barred US from sparking instability in South Asia. He said that US should refrain from creating strategic imbalance in the region. The statement surfaced after foreign media claimed that US will make Pakistan join NSG.

But, the joining is conditional as Pakistan would have to accept certain restrictions, the media reported. It was revealed after US attack on Doctors Without Borders (MSF) installment in Afghanistan's Kunduz that special analysts were tasked to collect intelligence over Pakistani operative's possible coordination with Taliban. In an interview with BBC Urdu, Aziz discarded the possibility that the alleged intelligence operation would impact talks with US. He said that the world is aware of Pakistan's activities and efforts to restore peace in the region. He rejected reports regarding compromise over defense

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capabilities and said that PM Nawaz's Washington visit aims at discussing nuclear safety.

He cleared time and again that Pakistan could not compromise over national interest. He hoped that Pakistan would be included in NSG however, the NSA said that US could retain desired ties with India. But, he said that US should not fan imbalance when Pakistan-India relations are quite tense. While talking about peace process in Afghanistan, he said that Pakistan would not hesitate to play a mediator's role after US has shown interest in talks with Afghanistan. Aziz said that Pakistan would welcome any US decision regarding peace and stability in Afghanistan. He dwelled further on the US visit saying that the PM would discuss economic cooperation and trade enhancement besides nuclear talks....

Source: <http://dunyanews.tv/>, 19 October 2015.

USA

US Allows a New Nuclear Reactor to Open for the First Time in 20 Years

The Nuclear Regulatory Commission issued the first new operating license for a nuclear power plant in more than 20 years. The license was given to the Tennessee Valley Authority for its Watts Bar Unit 2 reactor located in Spring City, Tennessee, which has been in development limbo for the past 40 years. After finally finishing construction on the site and undergoing numerous inspections, TVA can now start loading uranium into the reactor and begin generating electricity.

The license grants TVA authority to operate Watts Bar Unit 2 for the next 40 years. Watts Bar Unit 2 has had the "longest construction history of any reactor in the world," according to the Bulletin of the Atomic Scientists. Construction first began on the reactor in 1972, but things came to a halt in 1985 when it

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was only 60 percent complete. At that point, TVA had spent \$1.7 billion on the project, much more than the estimated \$825 million it would take to build both Watts Bar Unit 2 and its identical twin, Unit 1. TVA only started working on the site again in 2007. But after the Fukushima disaster in 2011, the agency had to comply with a new host of safety regulations, further delaying completion of the reactor. Watts Bar Unit 2 is the first reactor to meet the new Fukushima-related safety orders issued by the NRC. The total cost of completing Unit 2 and complying with these regulations is thought to be around \$4.5 billion.

These high construction costs may explain the licensing hiatus, and why there are so few reactors scheduled to start up operations soon. Only four reactors are expected to power up by the end of 2020, and currently, just 100 nuclear power plants in the US provide 19.6 percent of the electricity for the nation. Other power alternatives, like natural gas, serve as much cheaper options for producing electricity, requiring less initial investment than nuclear power. However, newly implemented carbon emission regulations may heighten the cost of maintaining natural power plants, making nuclear power a more favorable option.

Source: <http://www.theverge.com/>, 26 October 2015.

NUCLEAR PROLIFERATION

NORTH KOREA

North Korea Preparing for Fourth Nuclear Test: Report

South Korea's spy service believes North Korea is preparing for a fourth nuclear test but not in the

immediate future. The office of lawmaker Shin Kyung-min says the National Intelligence Service made the assessment in a closed-door meeting with lawmakers on 20 October. A memo provided by Shin's office cited the agency as saying it has

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been monitoring activities at the North's main Nyongbyon nuclear complex using human and technical intelligence assets. In September North Korea said it had upgraded and restarted all of its atomic fuel plants, sparking speculation that it might conduct a fourth nuclear

test explosion. The speculation subsided after North Korea didn't go ahead with a threat to implement a banned long-range rocket test. All of the North's previous three nuclear tests came after it launched long-range rockets.

Source: <http://timesofindia.indiatimes.com/>, 20 October 2015.

JAPAN

Chinese Ambassador: Japan has Serious Nuclear Security and Proliferation Risks

China's Ambassador for Disarmament Affairs Fu Cong expressed concerns over Japan's excessive accumulation and serious supply/demand

imbalance of nuclear materials when delivering a speech on nuclear weapon at the first committee of the UN general assembly in New York on October 20, 2015.

Fu Cong noted that over the years, Japan has accumulated a huge amount of sensitive nuclear materials, giving rise to grave risks both in terms of nuclear security and nuclear proliferation. At present, Japan possesses about 1200 kilograms of HEU and about 47.8 tons of separated plutonium, among which 10.8 tons are stored on Japanese territory, enough to make 1350 nuclear warheads. "The fact that Japan accumulates more

Fu Cong noted that over the years, Japan has accumulated a huge amount of sensitive nuclear materials, giving rise to grave risks both in terms of nuclear security and nuclear proliferation. At present, Japan possesses about 1200 kilograms of HEU and about 47.8 tons of separated plutonium, among which 10.8 tons are stored on Japanese territory, enough to make 1350 nuclear warheads.

and more weapon-grade fissile materials, especially separated plutonium, will put Japan, and its neighboring countries and the whole world at risk," a joint study by China Arms Control and Disarmament Association and the China Institute of Nuclear Information and Economics said. Fu Cong pointed out that the current stockpile of nuclear materials of Japan far exceeds its legitimate needs. This situation not only contravenes to Japan's proclaimed policy of "no excess plutonium" and its own proposal to reduce the use of HEU, but also violates the relevant rules and guidelines of the IAEA and the purposes and objectives of the Nuclear Security Summit.

Fu further illustrated that twenty years after announcement of its "no excess plutonium" policy, Japan's total amount of separated plutonium was doubled rather than reduced. Obviously, such a situation is a cause of grave concern for the international community. Fu said that against this background, instead of taking any serious step to reassure the world, Japan is taking the following actions which further aggravate the situation: first, Japan restarted the first nuclear power unit this August; second, Japan plans to start in March 2016 operation of Rokkasho reprocessing plant, with a designed capacity to produce 8.9 tons of separated plutonium annually. Japan does not need that much enriched uranium for producing nuclear energy. So we are suspicious for any ulterior motives by the Japanese government to invest such a large amount of money in that, said Zhu Xuhui, a senior consultant affiliated with the China Arms Control and Disarmament Association.

Given the lack of feasible ways to consume these materials, it can be predicted that the imbalance of supply and demand of nuclear materials in Japan will aggravate further. On top of these, despite the fact that, in March 2014 Japan promised to return 331 kg of weapon-grade plutonium and part of its HEU to the US, so far, we have not seen any progress reported in this regard, Fu continued. "Japan's nuclear materials

problem is not insolvable," Chinese Foreign Ministry spokeswoman Hua Chunying said in response to the issue. "The linchpin lies in its sincere and responsible attitude, adopting tangible measures to address the concerns of the international community," she said. Fu Cong said we have also noted with concern that, over the years, some political forces in Japan have continuously clamored for the development of nuclear weapons, claiming that Japan should have nuclear weapons if it wants to be a power that could sway the international politics.

In light of all these developments, we strongly urge the Japanese government to respond to the concerns of the international community in a responsible manner and take concrete measures to address the existing problems. For this has a significant bearing on the international non-proliferation system, nuclear safety and security as well as prevention of the threat of nuclear terrorism, Fu said. Fu Cong also

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comprehensively expounded China's nuclear policy to the UN, stressing that China firmly sticks to a path of pursuing peaceful development, and adopts an open, transparent and responsible nuclear policy. China has consistently advocated and promoted complete prohibition and thorough destruction of nuclear weapons.

Source: <http://eng.mod.gov.cn/>, 21 October 2015.

NUCLEAR NON-PROLIFERATION

INDIA

Nuclear Non-Proliferation Requires Support of All: India

India has stressed at the need for international community to ensure that terrorists are prevented from gaining access to nuclear weapons and other sensitive materials and technologies, saying strengthening the global objective of non-proliferation requires support of

all. "Strengthening the global objectives of non-proliferation requires the support of all states and the full and effective implementation of obligations arising from the respective agreements and treaties. India is committed to making its contribution including through participation in the multilateral export control regimes," India's Permanent Representative to the Conference on Disarmament, Geneva, Ambassador DB Venkatesh Varma said. The international community has a vital interest in preventing terrorists from gaining access to nuclear weapons and other sensitive materials and technologies, he said at a debate on nuclear weapons at the First Committee of the 70th session of the general assembly.

He said achieving nuclear disarmament requires a step-by-step process underwritten by a universal commitment and an agreed global and non-discriminatory multilateral framework. "Reducing the role of nuclear weapons is the first step along the path of progressive steps towards their de-legitimisation and achieving nuclear disarmament," he said. "Increasing restraints on use of nuclear weapons would reduce the probability of their use - whether deliberate, unintentional or accidental," Varma said adding that India has called for a meaningful dialogue among all nuclear-weapon states to build confidence and for reducing the salience of such weapons in international affairs and security doctrines. He noted that India, as a responsible nuclear power, has a policy of credible minimum deterrence based on a 'No First Use' policy and no-use of nuclear weapons against a non-nuclear weapon states. "We are prepared to convert these into bilateral or multilateral legally binding arrangements. India's position on the NPT is well-known and needs no reiteration. There is no question of India joining the NPT as a non-nuclear

weapon state," he said. ...

Source: <http://timesofindia.indiatimes.com>, 22 October 2015.

IRAN

Iran Notifies IAEA of its Willingness to Implement Additional Protocol for Nuclear Deal

Iran on 18 October, notified IAEA Director General Yukiya Amano that it will provisionally apply the Additional Protocol to its Safeguards Agreement when the Joint Comprehensive Plan of Action (JCPOA) comes into effect, the IAEA announced in a statement. It said the Additional Protocol, a voluntary agreement that grants the IAEA

expanded rights of access such as to information and unannounced access of nuclear facilities, is pending ratification by the Iranian parliament. The statement comes on the so-called Adoption Day of the JCPOA nuclear deal, 90 days after it was endorsed by the UN Security Council. The JCPOA, agreed upon by Tehran and the P5+1 group in Vienna on July 14

after nearly two years hard negotiations, sets out limits to Iranian nuclear activities in exchange for a lifting of imposed sanctions. The IAEA on 15 October announced the completion of activities set out in the "Road-map" deal between the nuclear watchdog and Iran on July 14 to clarify "past and present outstanding issues regarding Iran's nuclear program." Amano will release a final assessment on the resolution of "all past and present outstanding issues" by Dec. 15, the IAEA said.

According to JCPOA, from the beginning of the Adoption Day, "JCPOA participants will make necessary arrangements and preparations for the implementation of their JCPOA commitments." On the Implementation Day, which many believe could be more than two months later, simultaneously with the IAEA report verifying implementation by

Strengthening the global objectives of non-proliferation requires the support of all states and the full and effective implementation of obligations arising from the respective agreements and treaties. India is committed to making its contribution including through participation in the multilateral export control regimes," India's Permanent Representative to the Conference on Disarmament, Geneva, Ambassador DB Venkatesh Varma said.

Iran of the nuclear-related measures, the EU is expected to “terminate” all nuclear-related economic and financial sanctions, while the United States will “cease the application” of most of the nuclear-related economic and financial sanctions.

Sources: <http://famagusta-gazette.com/>, 20 October 2015.

NUCLEAR COOPERATION

CHINA–UK

Chinese President Xi Jinping Visits UK to Seal Nuclear Deal

The Chinese President’s trip to the UK is intended to focus on plans to build two nuclear reactors in England. His country’s human rights record is likely to be overlooked – even by the Royal Family. Chinese President Xi Jinping is due to arrive in London later on 19 October for a four-day trip. He praised Britain’s initiative in strengthening its trade relations with China as he prepared for his first state visit to the United Kingdom. His stay in London is expected to cement ties between Britain and China, focusing on a number of business deals. Xi said that China looked forward to engaging with the UK “in a wider range, at a higher level and in greater depth.”

“The UK has stated that it will be the Western country that is most open to China. This is a visionary and strategic choice that fully meets Britain’s own long-term interest,” he said. Xi’s visit to Britain, during which he and his wife Peng Liyuan will stay at Buckingham Palace as guests of Queen Elizabeth II, will also include meetings with various members of the Royal Family, including Prince Charles, who has been a vocal supporter of the Dalai Lama for years. Xi’s visit marks the first state visit by a Chinese president to the UK since 2005.

Slowing Growth: The trip comes at a time of global anxiety about China’s slowing growth, which Xi himself acknowledged. Xi said that China itself is worried about the slowing of the broader global economy, while he showed confidence in China’s eventual recovery. We do have concerns about the Chinese economy, and we are working

hard to address them. We also worry about the sluggish world economy, which affects all countries, especially developing ones,” he said.

Xi added that the slowing was normal as a part of structural adjustments, as the government sought to wean it off an over-reliance on investment in infrastructure and housing. Britain was the first Western state to join the China-led AIIB earlier this year, leading to many other countries to follow suit. Britain said that joining the AIIB would “create an unrivalled opportunity for the UK and Asia to invest and grow together”.

Cameron: a “Golden Time” in Bilateral Relations:

Xi’s visit comes amid debate in Britain over what is the best way to engage with a Communist-ruled China which has grown economically and diplomatically but maintained stances that are often seen as at odds with those widely held in the West. These include human rights issues and the expansion of Chinese influence in the South China Sea. Tensions were on display when Xi visited the United States in September, with the issue of cyber theft causing particular friction. Britain’s finance minister George Osborne visited China in September, where he tried to attract further Chinese investment into Britain. Chinese state media praised Osborne for having the “etiquette” not to press human rights issues.

However, Jeremy Corbyn, the newly elected opposition leader from the Labour party, said he intended to bring up the issue of human rights during Xi’s visit. Xi meanwhile called on Britain and other countries to avoid what “bias against Chinese companies.” But European businesses have previously complained about what they saw as an increasingly restrictive environment for doing business, with new rules on technology sales limiting firms to choose between forgoing the market and handing potentially sensitive data to Chinese authorities.

Nuclear Deal and London Trade: One particular deal expected to be finalized during Xi’s visit is a plan for two state-owned Chinese utilities to invest in a 16 billion UK pound (\$25 billion) nuclear power project built by French utility EDF at Hinkley Point in the southwest of England.

China had previously announced its ambitions to sell its own nuclear technology overseas, including in Western nations. "Hinkley Point is the product of tripartite cooperation among China, the UK and France. I hope that the companies of the three countries will fully leverage their respective strengths to ensure the successful launch of this project and deliver benefits to the British people," Xi said. EdF-chief Jean-Bernard Levy said that his company was in final negotiations with its Chinese partners."If all goes well, we will be able to announce major news in coming days; the first nuclear new-build in Europe since the Fukushima accident," Levy said on television station iTELE. ...

Source: <http://www.dw.com/>, 19 October 2015.

SAUDI ARABIA-HUNGARY

Saudi Arabia and Hungary Sign Nuclear Energy Pact

Riyadh is trying to diversify its energy streams as domestic consumption in the kingdom continues to rise quickly. Oil giant Saudi Arabia, which is trying to diversify its energy sources, signed an agreement on 19 October 2015 with Hungary to cooperate in the use of atomic energy. It is the latest pact of its kind signed by Riyadh, which earlier this year reached similar agreements with Russia and South Korea.

The deal with Hungary includes cooperation in reactor design, construction and operation, security, waste management and training, the official Saudi Press Agency (SPA) said. Hashim bin Abdullah Yamani, president of the King Abdullah City for Atomic and Renewable Energy (K.A.CARE),

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signed the latest deal with Hungary's Minister of National Development Miklós Seszták. The agency quoted Yamani as saying that the agreement with Hungary will help the kingdom to establish atomic and renewable energy in a sustainable way to help preserve depleting hydrocarbon resources. Hungary signed a deal last year with Russia's Rosatom to expand its sole nuclear plant, Paks, with two power blocks of 1,200 megawatts financed with a 10-billion-euro (\$11-billion) loan from Moscow. Saudi Arabia is entirely dependent on oil and gas for its electricity production, and according to SPA its energy demand is growing between six and eight percent annually.

In June, France and Saudi Arabia announced a feasibility study for building two nuclear reactors in the kingdom. SPA said Saudi Arabia has reached additional cooperation pacts with China, Argentina and Finland, and hopes for more. The late King Abdullah established K.A.CARE in 2010 to develop alternate energy, including atomic power. Saudi Arabia is pursuing its own nuclear projects while it worries about the nuclear drive of its regional rival Iran. ...

Source: <http://www.middleeasteye.net/>, 19 October 2015.

USA-KAZAKHSTAN

Kazakh, USA Join Forces in Nuclear Fuel Supply

KazAtomProm and Centrus Energy have signed a memorandum of cooperation that "specifies the development of mutually beneficial relations on competitive supplies of Kazakhstan's uranium to the world market", the Kazakh state-run company said. The document was signed by KazAtomProm

chairman Askar Zhumagaliyev and Centrus Energy senior vice-president Kevin Alldred during Zhumagaliyev's official visit to the USA. KazAtomProm is the world's biggest uranium producer, while Bethesda, Maryland-based Centrus Energy supplies enriched uranium fuel for commercial nuclear power plants in the USA and around the world.

KazAtomProm said that, during his trip, Zhumagaliyev will meet with the president and CEO of Westinghouse Electric Company, Danny Roderick, and the president of Cameco, Tim Gitzel. Zhumagaliyev will then invite companies to take part in the Astana EXPO-2017 conference and exhibition to be held from 10 June to 10 September 2017. He will hold a number of business meetings with companies engaged in the nuclear energy sector and visit the site of a nuclear reactor under construction "to become acquainted with" Westinghouse's work on fuel assembly production, KazAtomProm said... Zhumagaliyev said the company plans "to become the leading supplier of natural uranium on the world market, to diversify production at the front end of the nuclear fuel cycle, in particular, to start production of fuel assemblies". A former deputy minister for investment and development, Zhumagaliyev was appointed the new head of KazAtomProm in May.

Kazakhstan became the leading supplier of uranium to US nuclear power plants in 2014, overtaking Australia, according to the US Energy Information Administration (EIA). According to the EIA's Uranium Marketing Annual Report, published in May, of the uranium purchased by US reactor

owners and operators, 23% was of Kazakh origin, while 20% came from Australia and 18% from Canada.

Source: <http://www.world-nuclear-news.org/>, 21 October 2015.

US-VIETNAM

US Willing to Assist Vietnam in Civil Nuclear Power: Scientists

During his visit to Vietnam in mid-October, Assistant Secretary of State for International Security and Nonproliferation Thomas Countryman stated that the US was willing to help Vietnam in its nuclear energy program, whether or not Vietnam buys US technology. Countryman

emphasized the necessity of setting up a committee independent to the government and other organizations which will be in charge of controlling the safety of nuclear power plants and ensure they can operate in an effective and

transparent way. The statement has caught the special attention of scientists, who think the statement implies that the US would help Vietnam control the safety of nuclear power plants. Dr. Nguyen Mong Sinh, former deputy head of the Da Lat Nuclear Research Institute, said if troubles occurred, dangers would spread to

different countries. Therefore, it is impossible to develop nuclear power just within the countries' border and keep nuclear technology secret. Any country which plans to develop nuclear power needs to learn from the experiences from other countries. The US knows that Vietnam is considering building the first nuclear power plant and it has discussed Russian support for the project.

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However, the US has reasons to show its interest in the matter. The US began giving assistance to Vietnam in many different fields, even before Vietnam set to build its first nuclear power plant. The US once cooperated with Russia, the IAEA and Vietnam in a mutual agreement on converting fuel rods at the Da Lat nuclear reactor from high enriched to low enriched. This aims to ensure the operation safety. "I believe that the US has reasonable approach in the issue and Vietnam needs to take full advantage of the other countries, not only the US, but the other countries ahead of Vietnam in nuclear power development as well," Sinh said. Regarding the US suggestion that Vietnam should establish an independent committee in charge of supervising nuclear power plants, an analyst said it was reasonable. The US believes that nuclear power plants run with complicated technologies need supervision by objective bodies. A comprehensive cooperation agreement between Vietnam and the US was signed on consultancy capability, research and development, and training and services in the nuclear energy field in late October 2014. Prior to that, the 123 Agreement on the US-Vietnam civil nuclear cooperation took effect on October 3.

Source: <http://english.vietnamnet.vn>, 25 October 2015.

NUCLEAR SAFETY

GENERAL

UN Atomic Energy Chief Encourages States to Improve Global Emergency Preparedness and Response

Opening a week-long conference in Vienna, Austria, on strengthening national systems in

dealing with nuclear and radiological emergencies, the head of the IAEA told delegates today that national-level response plans in preparedness need to be in line with international safety standards and best practices. "We provide guidance to Member States that covers all areas of emergency preparedness and response. This includes support in understanding and mastering the latest IAEA concepts, principles and safety standards."

IAEA Director General Yukio Amano said in opening remarks opening remarks to the IAEA International Conference on Global Emergency Preparedness and Response. "We assist in the design, conduct and evaluation of

emergency exercises. We provide technical support to national and regional capacity-building projects," he added. In addition, the IAEA plays the central role in responding and establishing response framework to international nuclear or radiological emergency, according to the Director General. "I encourage all countries to use the many services provided by the IAEA, including our emergency preparedness review missions," he noted, adding: "I also encourage all countries to test their existing operational arrangements, including

through international exercises such as ConvEx, to identify areas that may require further improvement."

Mr. Amano went on to note the weaknesses of the emergency preparedness and response arrangements in 2011 Fukushima Daiichi accident, which had been highlighted in his recent report. Acting quickly and responding properly requires extensive preparation, said Elena Buglova, Head of the IAEA Incident Emergency Centre (IEC). "Emergency response begins with preparedness," she added. As the global focal point for

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coordinating international communication, assistance, and response to nuclear and radiological emergencies, the IEC helps Member States to improve their emergency preparedness and response capabilities. Mr. Yukiya also indicated that Japan and other users of nuclear power had taken important steps to address these and other nuclear safety issues in the years following the accident. "I have seen major improvements in safety in every nuclear power plant that I have visited since the accident. I believe the key message – that complacency about safety must be avoided at all costs – is fully understood."

More than 470 experts in emergency preparedness and response from 85 States and 19 international organizations are gathered for the conference, which runs through 22 October. The Director-General concluded his statement emphasizing that despite the best safety efforts, the possibility of radiation-related emergencies cannot be totally excluded. "This makes an efficient emergency preparedness and response system essential."

Source: <http://www.un.org/>, 19 October 2015.

SOUTH KOREA

S. Korea Calls for Regional Body on Nuclear Safety

South Korea on 22 October called for the establishment of a regional body tasked with promoting nuclear safety, saying it would mark a milestone in Northeast Asian cooperation. Foreign Minister Yun Byung-se made the remarks during the opening of the International Forum on Northeast Asia Nuclear Safety Cooperation, which brought together government officials from South Korea, China and Japan, as well as the United States, Russia, Mongolia, France and Canada. The two-day forum, which has been held annually since 2013, expands on the Top Regulators' Meeting involving senior nuclear safety regulators from South Korea, Japan and China, with

the participation also of nuclear experts from international organizations, such as the IAEA and the WANO. "As of August this year, South Korea, China and Japan have a total of 93 nuclear plants, with a total of 92 plants currently under construction or planned for construction," Yun said. "In terms of regional cooperation, Northeast Asia has a regional cooperation mechanism for nuclear safety that is larger than in any other place."

This year's session, held under the theme "Enhancing Northeast Asian Leadership in Nuclear Safety," will review the IAEA's report on the 2011 Fukushima nuclear accident and its implications for Northeast Asian cooperation on nuclear safety. It will also discuss various measures to strengthen cooperation on nuclear safety regulations, responding to nuclear accidents and

carrying out related research. "If a consultative body for Northeast Asian nuclear safety is launched, it will be a historic milestone for peaceful cooperation in Northeast Asia," Yun said. The minister also urged North Korea to abandon its nuclear weapons program and join efforts for nuclear safety, saying the North's nuclear facilities are a concern for the entire region.

Source: <http://english.yonhapnews.co.kr/>, 22 October 2015.

Uranium sector went into a downturn in recent years, especially after Japan's post-tsunami nuclear reactor meltdown caused that country to shut down reactors, with ripple effects in other countries. However, with new reactors being built, especially in Asia, and the expected restart of more Japanese reactors in the next few years, some analysts are calling for demand, and spot prices, to increase.

URANIUM PRODUCTION

GENERAL

Uranium Miner Sees China and India as Key Growth Markets

Canada is the world's second largest uranium producer in the world, next only to Kazakhstan, according to the World Nuclear Association. But the uranium sector went into a downturn in recent years, especially after Japan's post-tsunami nuclear reactor meltdown caused that country to shut down reactors, with ripple effects in other

countries. However, with new reactors being built, especially in Asia, and the expected restart of more Japanese reactors in the next few years, some analysts are calling for demand, and spot prices, to increase.

Even with decreased global demand, the value of Canadian-origin uranium exports in 2013 amounted to about \$1-billion, according to government figures. Exports are mainly to the United States, Europe and Asia. Tim Gitzel, president and chief executive officer of Saskatoon-based Cameco Corp., oversees the largest high-grade uranium mines in the country: McArthur River and Cigar Lake, both in Saskatchewan. Mr. Gitzel sees two major growth opportunities: China and India.

"China has the largest number of nuclear power plants under construction in the world," Mr. Gitzel says. Twenty-five reactors are under construction, and 26 are already in use. Furthermore, according to the World Nuclear Association, China is looking to have more than a three-fold increase in nuclear capacity by 2020-21. Uranium is typically used in nuclear reactors to produce electricity, and a small portion is used for producing medical isotopes.

India, which is the world's second-fastest-growing market for nuclear fuel, signed its first long-term contract with Cameco earlier this year. The deal, unveiled by Prime Minister Stephen Harper and Indian Prime Minister Narendra Modi, is worth \$350-million and involves Cameco supplying 3,220 metric tonnes to power India's reactors over the

next five years. Nuclear reactors in India provide 3 per cent of the country's electricity needs, but with six reactors under construction Mr. Gitzel expects that number to increase. "Both countries are pursuing rapid nuclear growth strategies to

supply their growing populations and economies with a clean, reliable energy source," Mr. Gitzel says.

Heather Kincaide, program manager at the Asia Pacific Foundation of Canada, points out one potential problem for Canadian uranium exporters is that India and China are interested in being more self-reliant. "In China and India, reducing import dependency is an explicit priority in energy policy." Ms. Kincaide says China is in fact developing

nuclear energy technologies to help reduce reliance on imported uranium. However, the desire to become self-reliant is hindered by inadequate domestic production. Ms. Kincaide uses India as an example, with approximately 250 million people still lacking access to energy. So it may be more viable to use imported energy, compared to domestic, simply because the resources are not there. Outside of China and India Ms. Kincaide says, "Vietnam, Indonesia and Malaysia are also considering building nuclear power plants." Inside North America, Mr. Gitzel expects the demand for nuclear energy to remain relatively flat over the next decade. "There are a number of other sources of cheap energy at this time, which is likely why we do not see as much demand here as we do in other markets."

The current weaker Canadian dollar, though detrimental for some exporters – depending on what currency they sell their goods in – has not been too problematic for Cameco. Its products are priced in US dollars, and

the majority of production is incurred in Canadian dollars, so the effect of a lower loonie has generally been positive for the company.

Canada is poised to meet any uptick in global

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uranium needs. In addition to mining operations already planned for the near future, active exploration involving more than 40 companies continues in many parts of Canada, according to the World Nuclear Association. Aside from Saskatchewan, new prospects include Labrador and Nova Scotia in the Atlantic provinces, as well as Quebec, Nunavut and Ontario's Elliott Lake area.

Source: <http://www.theglobeandmail.com/>, 20 October 2015.

NUCLEAR WASTE MANAGEMENT

AUSTRALIA

Australia could Store Nuclear Waste for other Countries, Malcolm Turnbull Says

Australia should "look closely" at expanding its role in the global nuclear energy industry, including leasing fuel rods to other countries and then storing the waste afterwards, Malcolm Turnbull has said. But the prime minister said he was "sceptical" about whether Australia would ever build its own nuclear power stations to provide electricity to domestic customers, given the country had plentiful access to coal, gas, wind and solar sources.

Turnbull made the observations in a radio interview, a day after he named Dr Alan Finkel, a vocal advocate of nuclear power and the outgoing chancellor of Monash University, as Australia's next chief scientist. He was asked to weigh in on the issue during a visit to South Australia, where the state Labor government has launched a royal commission into options for participation in the nuclear fuel cycle. Turnbull praised the premier, Jay Weatherill, for setting up the inquiry.

"As Brett, the chef, was saying, and I think a lot of South Australians feel like this and it's a perfectly reasonable view: we've got the uranium [and] we

mine it; why don't we process it, turn it into the fuel rods, lease them to people overseas; when they're done, bring them back – and we've got very stable geology in remote locations and a stable political environment – and store them? "That is a business that you could well imagine here." Turnbull was less confident about the possibility of a domestic nuclear power industry. "Would we ever have a nuclear power station in Australia, or like the French do, dozens of nuclear power stations? I would be a bit sceptical about that," he said.

"I'm not talking about the politics. We've got so much other affordable sources of energy, not just fossil fuel like coal and gas but also wind, solar. The ability to store energy is getting better all the time, and that's very important for intermittent sources of energy, particularly wind and solar. But playing that part in the nuclear fuel cycle I think is something that is worth looking at closely."

The 2006 report suggested that up to 25 nuclear reactors could be built in Australia, producing a third of the country's electricity by 2050. But it also found nuclear power would be much more expensive to produce than coal-fired

power if a price was not put on carbon dioxide emissions. The Labor leader, Bill Shorten, said that the cost of setting up a nuclear industry from scratch was expensive. Shorten said it would be interesting to see what the South Australian royal commission proposed. ...

Source: <http://www.theguardian.com>, 28 October 2015.

Ship Laden with Nuclear Waste Heading to Australia from France, Despite Safety Concerns

A ship laden with nuclear waste is heading to Australia from France, despite concerns raised over its safety record. The BBC Shanghai, flagged to Antigua and Barbuda, is on its way to Port

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Kembla in New South Wales from the French port of Cherbourg with a cargo of reprocessed nuclear waste. ... The 25 tonnes of waste was originally generated by the Australian Nuclear Science and Technology Organisation and sent to France in 2001 for reprocessing.

Environmental groups have raised concerns over the safety of the BBC Shanghai, pointing out it has been blacklisted by the US due to its record. Greenpeace and French environmental campaigners called for the shipment, sent by French nuclear company Areva, to be halted. But following an inspection, the vessel was sent on its way and is set to arrive in Australia on November 27. An Areva spokesman said some small flaws had been found in the inspection that had been corrected. Once in Australia, the waste is set to be held at the Lucas Heights facility in Sydney. "It's outrageous that the BBC Shanghai is heading towards Australia

and it is not outfitted to safely carry nuclear waste," said Emma Gibson, head of program for Greenpeace Australia Pacific. "What we have is a vessel that will be ill-equipped to deal with any sort of accident involving the nuclear waste. It's an environmental disaster waiting to happen. "The last official inspection in August this year showed problems with shipboard operations and emergency preparedness. This is not the sort of ship that should be allowed to carry radioactive waste or anything hazardous, for that matter." ...

Source: <http://www.alternet.org/>, 19 October 2015.

USA

No Air Radiation Found, Ground Testing Next after Fire at Nevada Radioactive Waste Burial Site

Radiation wasn't immediately detected during flyovers of a burned trench containing long-buried radioactive waste at a commercial disposal site

in rural southern Nevada, state and federal officials said on 19 October. Ground testing was scheduled next, headed by a US Environmental Protection Agency radiological emergency team sent to the site about 115 miles northwest of Las Vegas, said Rusty Harris-Bishop, spokesman for the EPA Region 9 office in San Francisco. "No gamma radiation has been detected at this time," Harris-Bishop said in a statement announcing the federal agency was joining a damage and danger assessment headed by the state and involving the Nevada National Guard, Nye County officials and US Energy Department. The EPA said the unknown amount of low-level radioactive waste that burned had been deposited sometime in the 30 year-period before 1992, when facility operator US Ecology stopped accepting such material. It was one of six in the nation that accepted low-level radioactive waste, which typically includes tools, protective clothing, and parts and machinery from nuclear plants. The fire was out by 19 October morning and no injuries were reported, said Bud Marshall, southern Nevada regional supervisor for the state Division of Emergency Management and Homeland Security.

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Nye County Sheriff Sharon Wehrly said in a statement 19 October evening that US 95, a key north-south highway past the site, was reopened after ground and air testing found no contamination. The closure had stretched nearly 140 miles, from State Highway 160 in the Pahrump area to US 6 in the county seat of Tonopah. Several other roads were still closed, in part due to storm damage.

The Nye County School District shut its two closest schools in Beatty because of the fire, but was set to reopen on 20 October... Aerial testing was conducted on 19 October with a twin-engine airplane and a helicopter from the former Nevada Test Site flew, Nevada National Security Site spokesman Darwin Morgan said. A four-member Nevada Guard hazardous materials detection team arrived for ground testing, Maj. Mickey

Kirschenbaum said. It wasn't clear how the fire started. The shuttered disposal site is about 8 miles from populated areas. The area is under state Department of Health and Human Services jurisdiction. US Ecology employs 52 people and operates an adjacent plant to treat, recycle and dispose of hazardous and nonhazardous waste from commercial and government entities. The EPA in 2012 permitted US Ecology to accept toxic polychlorinated biphenyl, or PCB, waste. Harris-Bishop said that permit remains current. PCBs were manufactured and used for 50 years as liquid insulation in electrical transformers but were banned in 1979.

US Ecology spokesman Dave Crumrine said a company operations manager reported the fire about 1 p.m. 18 October, and no evacuations were ordered. The fire was reported to Nye County officials a little after 2:30 p.m., sheriff Sgt. David Boruchowitz said.

The radioactive waste dump consists of 22 trenches up to 800 feet long and 50 feet deep. Older trenches have waste within 3 feet of the ground surface, according to a 1994 history prepared for the federal Energy Department by the Idaho National Engineering Laboratory. Waste in more recent trenches is at least 8 feet deep. The 80-acre site was the first commercially operated radioactive waste disposal facility licensed by the federal government, according to the Idaho lab report. Nevada leases a 400-acre buffer zone around it from the federal Bureau of Land Management, according to a Nevada Division of Environmental Protection fact sheet. US Geological Survey studies in 1994 and 1998 found high concentrations of radionuclides underground, the Nuclear Resource and Information Service said.

Source: <http://www.usnews.com/>, 19 October 2015.

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