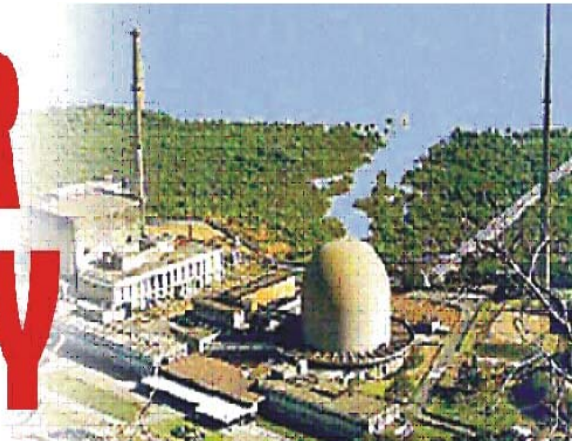


NUCLEAR SECURITY



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OPINION – Chidanand Rajghatta

US-Iran Clinch Interim Nuclear Deal: Blow to Israel and Saudi Arabia; Relief for India

The US plus five world powers reached a landmark deal with Iran to curtail the Persian country's purported march towards nuclear weapons. The agreement, when fully realized, has the potential to dramatically alter the geo-political landscape of the Middle-East, Gulf, and South Asia, affecting the strategic outlook and orientation of major countries from Israel to India and in between.

Under the first phase of the agreement, clinched in a 3am signing ceremony in Geneva, Iran will stop enriching uranium beyond five per cent, effectively giving up the higher levels of enrichment needed to produce fissile material for nuclear weapons. It will also divert or convert its stockpile of 20 per cent enriched uranium into an oxide form so it cannot be used for military purposes. Iran will also not install any new centrifuges nor start up any that are not already in operation or build new enrichment facility, while submitting to daily international inspections that will make it almost impossible for it to work towards making nuclear weapons.

In return, Iran will get to keep its existing centrifuges, be able to enrich uranium below five per cent for civilian nuclear uses, and receive relief from crippling US-led sanctions (including getting some revenues seized by past sanctions) for the next six months, during which a more detailed, longer term agreement will be negotiated.

At a broader level, it will begin the process of recasting strategic alignments in the region. Untrusting Israel, haunted by an existential crisis that comes from a (mutual) pathological fear of a nuclear-armed rival, straightaway rejected the deal, suggesting US and its allies had been suckered by Teheran. Sunni-dominated Saudi Arabia, which fears its cozy equation with Washington being eclipsed by a Shia-dominated Iran returning to the US sphere of influence, also lashed out at the agreement.

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Nearer home, the US-Iranian detente provides an exit route for the US from landlocked Afghanistan while reducing its dependence on extremist Pakistan, which is extracting a ransom for the 2014 drawdown from Afghanistan.

It will also come as a big relief for India, which has had to do juggle and balance four aspects — its growing strategic

partnership with the US, its strong military relationship with Israel, its economic and social investments in Afghanistan, and its civilizational ties with the Persian power. An Indian-built road from the Afghan border town of Zaranj to the Iranian port of Charbahar suddenly comes into play. Eventually, India may also be able to resume normal trade relations with Iran, which the US-led sanctions had put a crimp on.

The US-led deal is interim in nature and there is much that can go wrong in the six months during which the concerned parties

will negotiate a more comprehensive deal. For now though, both sides exulted on having broken new ground, and both claimed to have gained from the accord, effectively pointing to a win-win situation. "It is important that we all of us see the opportunity to end an unnecessary crisis and open new horizons based on respect, based on the rights of the Iranian people and removing any doubts about the exclusively peaceful nature of Iran's nuclear program," Iranian foreign minister Mohammed Javad Zarif, who played a key

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role in the talks, told reporters. "This is a process of attempting to restore confidence." President Obama, speaking from the State Dining Room in the White House, said diplomacy "opened up a new path toward a world that is more secure — a future in which we can verify that Iran's nuclear program is peaceful and that it cannot build a nuclear weapon."

But disquiet and unease were evident in the reactions from Israel and Saudi Arabia, although Obama pledged that as negotiations go forward, US will retain steadfast in its commitments to "friends and allies — particularly Israel and our Gulf partners, who have good reason to be skeptical about Iran's intentions." That skepticism was aired openly. "What was concluded in Geneva last night is not a historic agreement, it's a historic mistake," Israeli PM Netanyahu told reporters. "It's not made the world a safer place. Like the agreement with North Korea in 2005, this agreement has made the world a much more dangerous place." Netanyahu maintained that Iran would be "taking only cosmetic steps which it could reverse easily within a few weeks, and in return, sanctions that took years to put in place are going to be eased." But US interlocutors appeared confident that they had the lock on Iran's route to a nuclear weapon. "It will make our partners in the region safer. It will make our ally Israel safer," secretary of state John Kerry, who led the US-allied talks, said.

Source: <http://timesofindia.indiatimes.com>, 25 November 2013.

OPINION – Rajeev Deshpande

Iran Nuclear Deal May End Cheap Oil Supply for India

India's hopes to access cheaper oil after the US-led interim nuclear accord with Iran may prove a temporary advantage as the Persian Gulf nation emerges from isolation and begins demanding full dollar payments. The oil ministry's calculation that \$8.5 billion can be saved if India imports an additional 11 million tonnes of Iranian crude might look feasible, but India's appeal as a customer will wane if the nuclear deal holds and sanctions ease.

Though the deal faces formidable challenges with Saudi Arabia and Israel angrily rejecting it as

India's hopes to access cheaper oil after the US-led interim nuclear accord with Iran may prove a temporary advantage as the Persian Gulf nation emerges from isolation and begins demanding full dollar payments. The oil ministry's calculation that \$8.5 billion can be saved if India imports an additional 11 million tonnes of Iranian crude might look feasible, but India's appeal as a customer will wane if the nuclear deal holds and sanctions ease.

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"appeasement", and both Iran and the US not making irreversible commitments, India may have to game for an unshackled Iran. This might mean Iran's current need for allies and commercial partners and preparedness to accept rupee payments for its crude might change once it progressively emerges from a deep freeze of more than three decades. In the immediate run, India will be relieved that problems with re-insurance of Iran oil while shipping and refining can be addressed by the four-page agreement signed by Iran

and a strict six-monthly monitoring of sanctions could ease.

But the larger scenario where Iran reasserts itself in the Persian Gulf and becomes a factor from Afghanistan to Syria requires a more nuanced reading of India's options if US ties with Teheran do gather pace. Sources said India will need to balance relations with an emergent Iran looking to trade its nuclear programme for strategic dividends with its interests in Arab states that host an estimated seven million Indians pursuing their livelihoods.

There is a convergence over the need to check the Taliban in Afghanistan, but as Iran seeks what it considers its rightful place in the world, Indian diplomacy will be tested as ancient rivalries acquire a new edge. Saudis view Tehran as a Shia power whose civilizational claims and technological progress, along with a large population, pose a threat in theological and strategic terms. The possibility of Iran becoming a major US investment unites the Saudis and Israel.

India cannot see these faultlines as merely theoretical as the US is clearly tempted by not having to commit enormous resources in keeping Iran shackled and this clearly calls for a more innovative approach from New Delhi. The outlines of the accord that make it more difficult for Iran to weaponize its nuclear programme suit India's interest in not having another nuclear armed state in its

neighbourhood. Iran will need much more time to make a device once it implements conditions like not enriching uranium beyond 5% and abandoning plans to reprocess plutonium and a build a heavy water reactor.

Source: <http://timesofindia.indiatimes.com>, 26 November 2013.

OPINION – Marwan Bishara

US And Iran: Seven Questions Beyond the Nuclear Deal

After three rounds of talks in less than two months, Iran and six world powers have reached a preliminary agreement in Geneva on curbing Tehran's nuclear programme in exchange for some sanctions relief. The breakthrough came amid a history of failed negotiations, and could be the first step towards a detente between Western powers and Iran after 35 years of hostility. Noticeably, the agreement came less

than three months after Iran's new President Rouhani committed to changing Iran's relationship with the world.

The deal will have immediate regional and international ramifications, and once a long term deal is reached, possibly within a few months, rapprochement between Washington and Tehran is likely to pave the way towards major realignment in the greater Middle East region. It's also expected to open the way towards the recognition of Iran's regional role starting with Syria, Iraq, the Gulf region, and eventually in Afghanistan.

As the US downsizes its overall military presence, it expects the Iranian leadership to be less of a nuisance and more cooperative towards crisis management in the greater Middle East. And it seems, many in Tehran, and among its supporters, are pleased to see Iran replace Saudi Arabia or Israel as a reliable intermediary for the US in the region.

Some argue that this is all wishful thinking and will prove short-lived considering the decades' long antagonism and ideological differences. Others argue that in the long term, Iran (and Turkey) could prove more useful as US clients/partners than Israel and Saudi Arabia, considering their regional weight and historic importance.

The new deal will have serious ramifications on at least seven regional fronts:

Iran

The Islamic Republic is at the heart of any future regional shifts of power. US failures in Afghanistan, and more importantly in Iraq and Syria, have already strengthened Iran's hand. And the newly gained confidence in Tehran will be further enhanced by the removal of

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economic sanctions, and buttressed by a bigger role in a weakened region.

Q: How will Iran's rehabilitation and opening to the West affect the balance of power within the country and the future of the mullahs' rule?

Syria

Iran's expected participation in the Geneva-2 negotiation over Syria's future is its first reward for "good behaviour". A staunch supporter of Bashar al-Assad, with its special forces fighting alongside his regime, Tehran is likely to ensure Assad's survival, and along with Russia,

assist in his rehabilitation as an acceptable regional leader. Tehran and Moscow are eager to end the war and shift the emphasis from ousting Assad to "fighting terrorism" in Syria.

Q: What does a greater Iranian role in Syria mean to the struggle of Syrians for freedom from dictatorship, and the outcome of the horrific civil war there?

Iraq

The country is in a quagmire 10 years after the military invasion. It's terribly polarised between Sunni and Shia forces and hundreds - even thousands - of people are killed every month by suicide bombings. Tehran exercises major influence in the country, over Nouri al-Maliki's government, and among the Shia majority. And as of late, the authoritarian Maliki has emerged as an indispensable link between Tehran and Washington as he spearheads the fight against "extremist Sunni groups".

Q: Considering its new vigour, will Iran's support for Maliki lead him to an even greater monopoly of power and deeper divisions in the country?

Saudi Arabia

The wars in Iraq, Syria and the conflict in Lebanon in addition to the upheaval of the predominantly Shia majority in Bahrain - have deepened the rift between Riyadh and Tehran. Judging from criticism made recently by Saudi intelligence chief Bandar bin Sultan, who is Washington's ally in the Kingdom, the Saudi leadership is the most alarmed with the potential US-Iran detente and the rise of an unrestrained Iran on the Middle East stage. Further, Saudi-Iranian antagonism will lead to major sectarian escalation with incalculable price for the region.

Q: Will the hardening theological triangle - Saudi, Iran and Israel - take the region to new historic lows as the danger of sectarian conflict looms large in the region?

Afghanistan

As the US withdraws/redeploys outside the country in 2014 after a 13 year war leaving behind only residual forces through 2024, Washington can use all the help it can get to maintain control. With a certain influence over Afghanistan's northern regions, Tehran could be of assistance if it chooses to help stabilise Afghanistan and deter the return of the Taliban.

Q: Having briefly helped US forces fight against the Taliban after 2001, will Tehran cooperate once again with the US?

Palestine/Lebanon

Palestine is a domestic redline for both Washington and Tehran and, therefore, expect little or no change to the occupation of Palestine where they've agreed to disagree. Tehran has already lost much influence among the Islamist Palestinian factions due to its support of the Assad regime; its only influence remains with Hezbollah.

Q: Will Iran's Lebanese ally emerge stronger or weaker from the Syrian civil war, and will it become a Lebanese, and not an Israeli menace?

Israel

For the foreseeable future, Israel will continue to be the only nuclear power in the region. But Israel is no less annoyed by a resurgent Iran than it is by its nuclear development, especially the fact that Tehran has already acquired the nuclear know-how. Some suggest that this could lead to new unspoken Israeli alliance with the so-called moderate Sunni regimes, ie, Saudi Arabia, UAE, Jordan, Egypt, against their common nemesis, Iran

Q: Since Israel is particularly eager for such an arrangement, will such alliances finally see the light of day and what repercussion will that have on the region?

Source: Author is senior political analyst at Al Jazeera, <http://www.aljazeera.com/>, 24 November 2013.

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OPINION – Hina Pandey

The Perils of 'Peaceful Atoms': A Reflection on Recent Sino-Pak Nuclear Cooperation

The signing of peaceful nuclear cooperation agreements (PNCA) between states is not new. The idea was popularized first by the US President Eisenhower through his "Atoms for Peace" programme in 1953. In subsequent years, more

than two dozen countries have received civilian nuclear technology from the US under this assistance programme. Statistics suggest the high points of nuclear cooperation occurred between 1980-1995 when fifty-five nuclear cooperation agreements were signed. Furthermore, averages of twenty-six agreements reportedly were signed from 1945 to 2000 each year according to a recent study.

In a phenomenon that came to be known as 'Revival of Nuclear Power' (from the year 2000 onwards), countries from the Asian region such as Bangladesh and Vietnam expressed their willingness to go ahead with nuclear power development for the first time. For this PNCA's have been signed with Russia and France respectively. Also, India and China have already robust nuclear power development plans for future by concluding civilian nuclear cooperation agreements with the US, France, Russia, UK. Their nuclear power development had kicked off as early during the first nuclear age in the 1950s.

Prima facie, the recent Chinese PNCA with Pakistan only seems to be in line with the trend that had been long set by the enthusiasts of peaceful atom. Especially, when, Pakistan too had initiated its nuclear power development with the help of US 'Atoms for Peace' in 1954. However, the Sino- Pak cooperation has raised many worrisome dimensions, not just for Indian security but also for the global non-proliferation regime on the whole.

The dual use dilemma of the peaceful atom has always complicated the procedures under which peaceful nuclear cooperation is sought and provided. Not only is the supplier country expected to ensure non-proliferation guarantees from the recipient country to satiate the quest of checks by international regimes, the recipient must also satisfy all verification procedures applied by the IAEA safeguards regime.

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IAEA safeguards regime. The fecundity of these verification and compliances also lies in a bonafide spirit of the bilateral PNCA towards the nuclear non-proliferation regime.

China as an emerging and responsible participant of the international order has somewhat failed to ensure as to how its cooperation with Pakistan would add to the global objective of nuclear non-proliferation. As a member of the Nuclear Suppliers Group (NSG) since 2004, China is required to share information on its nuclear transactions and exercise restraint on transferring nuclear technology to a non-NPT signatory. These NSG guidelines are not legally binding but crucial as they facilitate obligatory terms for a safe nuclear technology transaction.

This is the second time in a row in a span of less than one year that China would be selling nuclear technology to Pakistan. It is noteworthy that previous Sino-Pak reactor deal (Chashma-I and II) as China claimed grandfathered in 1990s (before its NSG membership) was met by some disconcertment from the NSG and the waiver was denied in 2012. Despite the disapproval, China not only went ahead with the deal but concluded another nuclear cooperation agreement with Pakistan for its Karachi Nuclear Power Plant (KANUPP-II), which would likely to be operational in seven years. The Chinese defiance of NSG implies a defiance of a non-proliferation commitment of not one but 46 member nations are appalling.

Moreover, Pakistan does not qualify for nuclear commerce due to its proliferation linkages to Iran, North Korea and Libya. This must be viewed in the light of the fact that unlike India Pakistan does not have its nuclear programme distinguished into civilian and military. It may also be recalled that in 2006-2007 end user provision of the NSG guidelines was manipulated in the China-Pak nuclear deal for Chashma nuclear power plant (CNUPP-II).

In the coming few days on 08 December 2013 the very 'Atoms for Peace' speech of President Eisenhower that promoted the idea of peaceful nuclear cooperation worldwide would complete 60 years. The IAEA also called as the 'Atoms for Peace Agency' responsible for the state's compliance of the NPT is already more than 55 years old. One can observe an satirically impeccable timing of the announcement of KANUPP-II and 60th anniversary of a

speech that symbolizes prevention of the diversion of peaceful atoms into military one.

Interestingly; this irony gets the spotlight even more as the IAEA would be monitoring the KANUPP-II and needless to point out that has not officially expressed disagreement over the Sino-Pak defiance of the NSG guidelines. It is important to bring to attention that the NSG and IAEA work closely on preventing nuclear proliferation. The trigger list that forms the basis of NSG's export control guidelines were approved by the IAEA in 1978. NSG members in this respect could be viewed as one of the guardians of the nuclear non-proliferation regime. The NSG waiver was provided to India after three years of intense negotiations, such that any future Indian nuclear commerce transaction could materialise. In-fact the NSG emerged as

China, on the other hand, has killed two birds with a same stone through this nuclear cooperation. First, it has raised a Pakistani strategic counterweight against India in the realm of nuclear diplomacy by robustly cementing 'all weather' friendship. Secondly, it has sent a signal to the US led non-proliferation regime that how subtly and effortlessly non-proliferation guidelines that prevent any country from taking a certain step could be maneuvered for 'realpolitik'.

a reaction to the Indian PNE (1974). There is a diametrically opposite treatment of Indian and Pakistani development of their nuclear ambitions.

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effortlessly non-proliferation guidelines that prevent any country from taking a certain step could be maneuvered for 'realpolitik'. All this when, last year (2012) NSG in its plenary session considered further strengthening its export guidelines.

For the United States, burning questions have been raised as France too is willing to sign a similar agreement with Pakistan. If that happens without an NSG waiver, then the US would have to answer not just to India but to oneself as to how was all the effort towards an NSG waiver for US-India PNCA was at justified. A sincere belief in Pakistan's non-proliferation commitment by the US must also be made evident openly. One must note here that a recent report by a US think-tank named Pakistan as under the list of countries that are of concern for future as illicit nuclear trade suppliers. In any case; the non-proliferation lobbies in the US must prepare to answer questions; when North Korea might want to ask for a similar nuclear cooperation as it too is an energy deficient country and

the need for it to have nuclear energy might be more than Pakistan.

Source: Author is Research Associate at CAPS, In-Focus CAPS, November 2013.

OPINION – Elliott Negin

President Obama's Upside-Down Nuclear Weapons Policy

At the same time President Obama has been pressing for further reductions in US and Russian nuclear arsenals, the NNSA... within the Department of Energy is planning to spend \$60 billion over the next 25 years to replace existing US nuclear weapons with a suite of new warheads. According to a recent report released by the UCS, the NNSA plan which calls for building new nuclear material production facilities and consolidating the current stockpile of seven types of warheads into five is misguided.

... The centerpiece of the NNSA's plan, which it rolled out in June 2013, is its so-called "3+2" consolidation strategy. The arsenal of tomorrow would consist of three warheads deployed on Air Force and Navy long-range missiles and two types of air-delivered weapons deployed on cruise missiles and bombers.... Beyond economic and political considerations, the NNSA plan also has a major technical drawback: It could be difficult for the NNSA to certify that its new warheads are safe, secure and reliable without nuclear explosive testing. The US, which conducted its last explosive test in 1992, has signed but not ratified the CTBT prohibiting them.

... the NNSA is planning to build the Uranium Processing Facility at the Y-12 National Security Complex in Oak Ridge, Tenn., to produce new bomb secondaries, a component that helps produce a more powerful explosion. The projected cost of the facility has rocketed from \$600 million in 2005 to more than \$7 billion today, and the year it is expected to be fully operational has been pushed back from 2018 to 2038. The report recommends that the NNSA delay constructing the facility until it evaluates the possibility of reusing existing secondaries.

Meanwhile, the agency has already started building a new facility at its Savannah River Site near Aiken, S.C., to use plutonium from dismantled weapons to produce mixed oxide (MOX) fuel for

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Both the US Department of Energy's inspector general and the GAO have issued reports in recent years criticizing the NNSA's Stockpile Surveillance Program, which is tasked with assessing the weapon aging process. Historically, the program has been underfunded, undervalued and behind schedule

commercial nuclear reactors. The initial 2003 estimate pegged construction of the MOX Fuel Fabrication Facility at \$1.6 billion and assumed it would be completed by 2007. By September 2012, the total cost of the MOX program had soared to \$6.8 billion, and start-up had slipped to 2016.

The UCS report found that the MOX approach to disposing of excess plutonium has inherent security risks and recommends a different strategy: solidifying the plutonium in glass or ceramic material and disposing of it in a permanent repository....While the NNSA is pushing to build new facilities that UCS says are unwarranted, the agency is skimping on its program that monitors how well US weapons are aging, slow-walking dismantling retired warheads, and not devoting enough resources to develop new ways to verify arms reductions agreements.

Both the US Department of Energy's inspector general and the GAO have issued reports in recent years criticizing the NNSA's Stockpile Surveillance Program, which is tasked with assessing the weapon aging process. Historically, the program has been underfunded, undervalued and behind schedule, according to the UCS report.

...Dismantling weapons also should be a top priority, the UCS report says. In December 2010, the US and Russia signed the most significant nuclear arms-reduction agreement in nearly two decades, setting a cap of 1,550 deployed, long-range nuclear warheads for each side. The NNSA doesn't plan to begin dismantling any warheads retired under the treaty, known as New START, until 2023 and won't finish before 2038. Future US-Russian agreements likely will cover the thousands of warheads both countries keep in storage, which would further slow down the dismantlement process.

Finally, UCS says new verification regimes will be critical to ensure compliance with future arms reductions agreements. Currently the US and Russia only verify the number of each other's delivery systems, but they likely will reach a point where they will require warhead-level verification, and that poses greater technical challenges. The NNSA's support for research on verifying reductions, however, has declined over the past decade.

Given that it will be more difficult to verify nuclear reductions at low levels, the NNSA needs to devote more time and resources to developing the technology and expertise to ensure all parties to arms reduction treaties can confirm compliance," Gronlund said. "The NNSA has to make sure US weapons remain safe, secure and reliable, but it also has to keep its eyes on the prize, which is downsizing nuclear weapon stockpiles worldwide."

Source: Author is director of news and commentary at the Union of Concerned Scientists (UCS). <http://www.livescience.com/> 15 November 2013.

OPINION – Louis René Beres

The Future of Israel's Nuclear Deterrence

Israel remains correctly skeptical about the international community's current talks over Iran's nuclear program. Although US Secretary of State John Kerry insists that any lifting of sanctions would require "concrete, verifiable measures" on Iran's uranium enrichment program, Israeli PM Netanyahu expects any prospective arrangement worked out in Geneva to be "the deal of the century" for Tehran.

In essence, as Netanyahu seemingly understands far better than US President Obama, Iran is certain to continue with its prohibited production of weapons-grade material, suitable for clandestine nuclear weapons manufacturing.... Israel, still hoping to strike its own deal on "Palestine," recently released another batch of convicted Arab terrorists from its jails. Ironically, Netanyahu, so insightful about the futile US negotiations with Iran, has yet to understand that no Palestinian state would ever consent to peaceful coexistence with Israel. Moreover, Palestine could have a starkly injurious impact on Israel's nuclear deterrence options, and, ultimately, on the shape of war and terror in the Middle East.

In the absence of Palestinian statehood, Israel's survival would still require increasing self-reliance in military and defense matters. Any such expanded self-reliance, in turn, would demand: a viable nuclear strategy involving deterrence, preemption and war-fighting capabilities, and a corollary conventional strategy. The actual birth of Palestine, however, would impact these critical strategies in

A nuclear war could arrive in Israel not only as a "bolt-from-the-blue" surprise missile attack, but also as a result, intended or inadvertent, of escalation. If certain already extant enemy states were to begin conventional or biological attacks upon Israel, Jerusalem might respond, sooner or later, with aptly "proportionate" nuclear reprisals.

several determinative ways. A Palestinian state would make Israel's conventional capabilities more problematic; it could thereby heighten the chances of a regional nuclear war. Although Palestine itself would obviously be non-nuclear, its overall strategic impact could nonetheless be magnified by continuously unfolding and more-or-less unpredictable developments in Egypt, Syria, Libya, Lebanon and elsewhere

in this roiling and chaotic area.

A nuclear war could arrive in Israel not only as a "bolt-from-the-blue" surprise missile attack, but also as a result, intended or inadvertent, of escalation. If certain already extant enemy states were to begin conventional or biological attacks upon Israel, Jerusalem might respond, sooner or later, with aptly "proportionate" nuclear reprisals. Or, if these enemy states were to begin their aggressions with conventional attacks upon Israel, Jerusalem's own conventional reprisals might be met, in the future, with enemy nuclear counterstrikes.

For now, this would become possible only if a still-nuclearizing Iran were spared any final forms of Israeli or American preemptive interference, actions appropriately identifiable in law as "anticipatory self-defense." As a preemptive attack against Iran now seems operationally implausible, it is reasonable to assume that a persuasive Israeli conventional deterrent, at least to the extent that it would prevent enemy conventional and/or biological attacks in the first place, could reduce Israel's escalatory exposure to a nuclear war.

...The only credible way for Israel to deter large-scale conventional attacks after the creation of Palestine would be by maintaining visible and large-scale conventional capabilities. Of course, enemy states contemplating any first-strike attacks using chemical or biological weapons are apt to take more seriously Israel's nuclear deterrent, whether newly-disclosed, or still "in the basement."

...However unforeseen, Palestine, already a "nonmember observer state" at the UN, would have measurably corrosive effects on power and peace in the Middle East... Over time, Israel's conventional capacity to ward off enemy attacks could be commensurately reduced... Paradoxically, for Israel, even the "successful" defeat of Arab/Islamic state enemies in an unconventional

For Israel, even the "successful" defeat of Arab/Islamic state enemies in an unconventional war could prove intolerable. Here, after all, the results of a nuclear war, or perhaps even a chemical or biological war, could prove calamitous for the "winner," as well as the "loser."

war could prove intolerable. Here, after all, the results of a nuclear war, or perhaps even a chemical or biological war, could prove calamitous for the "winner," as well as the "loser."....

Source: <http://www.usnews.com>, 11 November 2013.

OPINION – President Rouhani

President Rouhani's Letter on Nuclear Negotiations

... The following is the text of the letters written on 24 November 2013 by President Rouhani to Ayatollah Khamenei, the Supreme Leader of the Islamic Revolution...

To the blessed presence of the Supreme Leader of the Islamic Revolution- Hazrat Ayatollah Khamenei (may his achievements continue),

With peace and abundant greetings,

I thank God Almighty because in the first months of the administration of wisdom and hope, your revolutionary children managed to prove - during difficult and complicated negotiations in international arenas - that the people of Iran have the right to follow their nuclear activities. Your revolutionary children managed to take the first step in a way that the nuclear rights of the people of Iran and their right to enrichment was acknowledged by global powers, which were trying for many years to deny such rights. Therefore, the path for future lofty steps towards preserving the technological and economic progress of the country has opened up.

Our success in these negotiations showed that by observing all principles and all the red lines of the Islamic Republic and by expressing the reasonable and logical positions of the Iranian nation, we can call on global powers to respect the rights of the people of Iran. These negotiations showed that we can take future steps towards resolving all disagreements in a determined way...

The clear results of this initial agreement include the formal recognition of the nuclear rights of Iran and the preservation of the nuclear achievements of our country. Besides, the process of imposing oppressive sanctions being halted, part of the illegal pressures that were exerted through these unilateral sanctions have been lifted and the collapse of

The clear results of this initial agreement include the formal recognition of the nuclear rights of Iran and the preservation of the nuclear achievements of our country. Without a doubt, this agreement is to the advantage of all regional countries, it will further peace and global progress and it is in line with the principle of win-win.

this system which is based on imposing sanctions has already begun. As a result of this innovation of Islamic Iran and this resistance of the great people of Iran, superpowers have reached the conclusion that sanctions and pressures will get them nowhere. As Iran had announced from the beginning, superpowers came to the conclusion that there is no way to reach an agreement except with

mutual respect and with honorable negotiations. This is an issue which, unfortunately, the other party noticed late. Without a doubt, this agreement is to the advantage of all regional countries, it will further peace and global progress and it is in line with the principle of win-win.

Source: <http://english.khamenei.ir/>, 25 November 2013.

NUCLEAR STRATEGY

CHINA

China's Nuclear Submarines Are Less Than Advertised

Nuclear submarines have been a favorite tool of the Chinese regime's state-run media recently when trumpeting China's military strength or threatening the West. Yet, despite the noise China makes about its nuclear submarines, they're not all they're cracked up to be.... The Global Times report included a map of the US complete with targets for nuclear attacks on major cities including Seattle, San Francisco, and Los Angeles. The report followed a segment from China's state-run CCTV News Network in late October that showed off China's submarine fleet, in light of China's territorial disputes in the South China Sea and East China Sea.

China's nuclear submarines have several technical flaws, limits caused by geography, and the deployment of its next-generation fleet has faced several setbacks. This is in addition to the fact that the US has complex systems capable of monitoring submarines much more advanced than what China can produce. China's main nuclear-powered ballistic missile (SSBN) submarine is the Jin-class (Type 094). Three of them are currently operational, and China may have five more in service over the next decade, according to the Pentagon's 2013 annual report...

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Despite being China's most advanced submarines, the Jin-class subs are louder than Soviet submarines from 30 years ago, according to an August 2009 report from US Navy's Office of Naval Intelligence. Anti-submarine warfare is based heavily on a nation's ability to detect and track submarines. The main system the US uses to track submarines is the Sound Surveillance System (SOSUS), which is part of the Integrated Undersea Surveillance System (IUSS).

SOSUS consists of a large network of undersea sensors installed at choke points in the ocean. It allows the US to detect submarines and track them based on their noise signatures. It was used during the Cold War to track Soviet SSBNs. Stealth is one of the key benefits of a submarine force, and controlling noise level is key for achieving stealth. Reducing the level of noise is among the key reasons why submarines are moving from diesel power to nuclear power, and why modern fleets have other advanced technologies for noise dampening. The majority of China's submarine fleet is still diesel powered, most of the submarines were purchased from Russia in the 1990s and 2000s, according to the Pentagon report. It is estimated to have 49 diesel submarines and 5 nuclear submarines.

The other problem with the Jin-class submarines is attack range—and this is affected both by technology and geography. The Jin-class submarines will eventually be armed with China's JL-2 submarine launched ballistic missile... The nuclear missiles have an estimated range of 4,600 miles, and are expected to reach operational capability this year.... The other option for the Chinese nuclear submarines would be to fire their missiles over Russia. The report notes, "All China's ICBMs launched at the US from their current deployment areas would overfly Russia."

China's nuclear submarines are confined to a small area around China, and the range of its nuclear missiles is limited. According to the report, if they were to even target Hawaii, the submarines would need to enter the Sea of Japan or the Philippine Sea. It does state, however, that China's nuclear-armed subs pose a threat to US territories outside the continental US, including Alaska and Guam. They are also a threat to US warships in the region.

Keeping Chinese nuclear-submarines out of range from the continental US relies on keeping them within China's waters. China is also developing its next-generation SSBN,

the Type-096, which according to a forthcoming report from the US-China Economic and Security Review Commission is expected to "improve the range, mobility, stealth, and lethality" of China's nuclear subs.

Source: <http://www.theepochtimes.com/>, 20 November 2013.

China's Nuclear Arsenal Getting Larger: Report

In a development that could impact the security of Taiwan, a new report estimates that China now has 250 nuclear warheads and is continuing to increase the size of its nuclear arsenal. China is assigning a growing portion of its warheads to long-range missiles capable of reaching the US... The US intelligence community predicts that by the mid-2020s, Beijing could more than double the number of these warheads that threaten the US to more than 100.

That situation might very well give Washington reason to delay coming to the aid of Taiwan in the event of a Chinese invasion.

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"The capability of the arsenal is also increasing, with liquid-fuel and relatively inaccurate maneuverable missiles being replaced by solid-fuel and more accurate road-mobile missiles," says the report titled *Chinese Nuclear Forces, 2013*.

It estimates that China's current arsenal includes as many as 60 long-

range missiles that can reach the US, but at this point only 40 of them 20 DF-5As and 20 DF-31As — can strike the continental US. Fisher said that China does not reveal the current or planned numbers of its nuclear weapons, and goes to great lengths to conceal its nuclear and missile-related planning development, production and deployment.

Source: <http://www.taipeitimes.com/>, 20 November 2013.

RUSSIA

Construction of Russia's Fifth Borei Submarine Said to Start within Year

The Russian Navy on 13 November 2013 revealed that building work for the service's fifth Borei-class submarine will begin within the next 12 months, RIA Novosti reported.

...It was previously reported that construction of the BMD submarine *Alexander Suvorov* would begin this past summer. Russia's Borei submarine program — planned to eventually encompass eight new BMD submarines — is behind schedule. No hint was given in 14 November 2013 Russian news report of why construction of the fifth submarine is happening later than earlier anticipated. The navy is expected to receive its second Borei vessel, the *Alexander Nevsky*, this month or next.

The navy is delaying scheduled test-launches of the Bulava strategic missile, which is intended for deployment on the Borei submarines. Russian Defense Minister Sergei Shoigu ordered five more practical trials of the SLBM be carried out after an unsuccessful September test of the weapon.

Armed with the nuclear-tipped Bulava missile, the Borei fleet is planned to form the backbone of Russia's sea-based nuclear deterrent, replacing retiring Soviet-era vessels. However, the Bulava has an uneven testing track-record. Including the September 2013 test, eight of the 19 or 20 trial firings of the SLBM have been formally declared as failures, though some experts believe the actual number of failed launches is substantially larger.

Another Russian nuclear-weapons modernization project — the retrofitting of a number of Tupolev Tu-160 heavy bombers — is also behind schedule, according to an *IHS Jane's Defense Weekly* report. The refurbishment of the 16 Blackjack strategic aircraft was to have been finished in 2017, but is now not expected to be wrapped until 2019 at the earliest, the defense publication said.

Source: <http://www.nti.org/>, 14 November 2013.

USA

Nuclear Testing Could Resume in Idaho

Nuclear discussions aren't just happening internationally, talks about nuclear testing are also happening right here in Idaho. The US Department of Energy says the Idaho National Laboratory in eastern Idaho is their top choice for the testing of new nuclear fuels and materials. They're now asking for the public's opinion on the project. A spokesperson for department tells us it could bring 50 to 60 jobs to the area. He says the lab was designed for this very type of research, and says it's a one of kind facility in the US. That's why the DOE is proposing to resume nuclear testing that stopped back in 1994. The research ended because they had examined all the types of nuclear fuel available at the time.

Now, spokesperson Tim Jackson says there are new options, but the materials need to go through short

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bursts of radiation in a nuclear reactor before scientists and engineers can look into the impact. "Safe and secure transient testing of nuclear fuel and material would help America improve current nuclear power plant performance and sustainability, and it would offer critical design input into America's next generation of reactors," said Jackson...They will choose between either the Idaho National Laboratory, or a facility in New Mexico for the testing...

Source: <http://www.ktvb.com/>, 25

November 2013.

BALLISTIC MISSILE DEFENCE

INDIA

Dhanush Missile Successfully Test-fired

India successfully test-fired its nuclear-capable Dhanush BMD from a naval ship off the Odisha coast on 23 November 2013. "The SFC successfully tested the Dhanush missile today from a naval ship," said M.V.K.V. Prasad, Director of the Integrated Test Range, Chandipur... The surface-to-surface Dhanush, a naval variant of India's indigenously developed 'Prithvi' missile, was test-fired... from a location in the Bay of Bengal by the SFC of the defence force. The single-stage, liquid-propelled Dhanush has been inducted into the armed services and is one of the five missiles developed by DRDO under the Integrated Guided Missile Development Programme (IGMDP)... The Dhanush missile is capable of carrying a conventional as well as a nuclear payload of 500 to 1,000 kg and can hit both land and sea-based targets.

Source: <http://www.thehindubusinessline.com/>, 23 November 2013.

IRAN

IRGC Commander: Iran Among Rare World States with Ballistic Missile Technology

Lieutenant Commander of the Islamic Revolution Guards Corps (IRGC) Brigadier General Hossein Salami said Iran is among the only three world country enjoying an indigenous ballistic missile technology.

...He pointed to Iran's capabilities in the field of Unmanned Aerial Vehicles (UAVs), and said, "While we did not have any knowledge about drones, we have developed and acquire drones that travel 2,000 kilometers, conduct their operations and then land in our desirable regions."

Earlier this November 2013, General Salami said the precision targeting of IRGC's ballistic missiles has been improved to have a margin of error near zero. "Our situation has improved now because our ballistic missiles margin of error (in precision targeting) is near zero now," ...

He pointed to the role played by the late commander and head of the IRGC Missile Research Center, Martyr Major General Tehrani Moqaddam, in the designing and production of high-precision ballistic missiles, and said, "Due to such attempts the precision of Iran's ballistic missiles has approached (a) zero (margin of error) and our ballistic missiles target moving vessels on the sea and they operate against (enemies') command and control centers." "Martyr Tehrani Moqaddam led us to self-sufficiency in area of ground-to-ground missiles and his ideas resulted in the development of an innovative missile power for Iran," he added.

Earlier this year (2013), Commander of the IRGC Aerospace Force General Amir Ali Hajizadeh said that Iranian experts at the IRGC Aerospace research center have increased the precision capability of the 'Persian Gulf' supersonic ballistic missile to a maximum margin of error of 8.5 meters... "When in its second test the Persian Gulf missile hit a moving vessel with 30m precision, we felt to have made a great success," Hajizadeh said in June 2013... "Less than 6 months later, our experts improved the precision capability of this missile to less than 8.5m," General Hajizadeh continued.

"And when the Persian Gulf missile came into operation in the IRGC Navy, the countdown started for the trans-regional countries to end the mission of their warships," the IRGC Aerospace commander stressed.

The supersonic projectile, which carries a 650-kilogram payload, is smart and immune to interception, and features high-precision systems. The Persian Gulf supersonic ballistic missile is the most advanced and most important missile of the IRGC Navy. The distinctive feature of the missile lies in its supersonic speed and trajectory. While other missiles mostly traverse at subsonic speeds

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and in cruise style, the Persian Gulf moves vertically after launch, traverses at supersonic speeds, finds the target through a smart program, locks on the target and hit it.

The range of the solid-fuel missile is 300km and it can be fired from triple launchers. The missile could successfully hit a mobile target one-tenth of an aircraft carrier in its early

tests. In early 2011, Iran started the mass-production of the Persian Gulf anti-ship missile which is designed to destroy targets and hostile forces at sea.

In April 2012, Hajizadeh noted the production of the Persian Gulf ballistic missiles, and said, "The research and testing phase of the Persian Gulf missile ended last year (2012), and it is now being mass produced by the Defense Ministry." Also in the same month, IRGC Navy Commander Rear Admiral Ali Fadavi underlined Iran's high defensive capabilities and power, and said the newly developed 'Khalij-e Fars (Persian Gulf)' missile would make the enemies change their equations and calculations due to its unusual and unique features. "The Persian Gulf missile has been developed somehow different from the usual trend and can change the equations on which the enemy most relies," Fadavi said at the time.

Referring to Iran's missile power, he said that Iran is now in possession of home-made missiles with the range of over 200km which can be mounted on Iranian high-speed boats. In July 2012, Iran's Persian Gulf missiles displayed their 100 percent precision capability after hitting and destroying the specified targets in the last phase of the Payambar-e Azam 7 (The Great Prophet 7) drills. "The Persian Gulf missile precisely hit and destroyed the target which was several times smaller than the marine targets which can pose a threat," Commander of the IRGC Aerospace Force said at the end of the last phase of the wargames on 04 July, 2012.

Source: <http://english.farsnews.com/>, 26 November 2013.

NUCLEAR ENERGY

BRAZIL

Westinghouse Sees Promising Future for Nuclear Energy Development in Brazil; AP1000(R) Plant 'The Right Fit' for Country's Needs

Brazil's growing economy, rich uranium reserves and commitment to clean energy sources make it ideally suited for new nuclear energy development based on the latest

Iran is now in possession of home-made missiles with the range of over 200km which can be mounted on Iranian high-speed boats.

safety technologies, the leader of Westinghouse's new-plant business said this week.

"Brazil is in an excellent position to diversify and strengthen its energy portfolio with the reliable, clean, baseload generation that nuclear power offers. An investment in new plants that feature the next generation of passive safety systems will help Brazil to successfully meet its increasing energy needs while maintaining the clean environment that its citizens value," said Jeff Benjamin, senior vice president of Westinghouse's Nuclear Power Plants (NPP) product line.

Brazil ranks among the top 10 globally in several economic categories, including gross domestic product, uranium reserves and installed capacity. Benjamin noted that its energy demands are projected to increase nearly five percent each year through 2021, and could increase even more as a result of further improvements in standard of living. Nuclear energy is poised to be an important source of the new electricity generation needed in the country.

"The Westinghouse AP1000 plant's proven passive safety features, strong licensing pedigree and modular construction provide superior delivery certainty – a key factor for countries looking to establish or expand their nuclear energy infrastructure," Benjamin said...

..."Westinghouse, together with its majority owner Toshiba, is proud to be a long-time partner in Brazil's nuclear energy program through our work with Indústrias Nucleares do Brasil (INB) on fuel and manufacturing technologies, as well as our service work with Eletronuclear's Angra fleet for the past 15 years. We see more opportunities to support the country's energy needs through the development of new Westinghouse AP1000 units, eight of which are currently being delivered to our customers in the US and China," Benjamin said.

"We believe that the AP1000 plant is the right fit for Brazil, and we look forward to working with our partners and potential customers in the country to put our technology to work powering Brazil's homes and businesses..."

26 November 2013's address at INAC was the culmination of the extensive visit in the region by Benjamin and the members of Westinghouse's Brazil team. Their schedule included meetings with

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various government leaders, business partners and potential customers in the country.

"With its existing units and nuclear industry already in place, Brazil has established a strong performance history in the nuclear energy sector. It has demonstrated the benefits that nuclear energy can bring in the form of well-paying jobs and the safe, reliable production of clean-air energy," Benjamin said. "We are eager to work with local partners in the country to build on that foundation."....

Source: <http://www.prweb.com/>, 26 November 2013.

INDIA

India Will Be Leader in Nuclear Energy: CNR Rao

India will become a leader in nuclear energy with new technology which is being used for the first time to build a fast breeder reactor to generate 500MW at Kalpakkam near Chennai, a top scientist said 17 November 2013. "We are building a fast breeder reactor, the first of its kind to generate 500MW through a process which is different from the usual nuclear reactor," PM's scientific advisory council chairman CNR Rao told IANS ... the reactor would be commissioned by April 2014 at the Kalpakkam atomic power plant, about 80km from Chennai in Tamil Nadu. "If this succeeds, we will become a leader in nuclear energy with completely new technology, which we have mastered," Rao said.

Claiming that Indian scientists had performed well despite marginal investment in science infrastructure, Rao said the scientific community had done much more than the money it was given over the decades. "The best money the government gave scientists was only enough for 20 percent of their requirement. We have never made full investment in anything. Ask the government and politicians why they have given so little for us. If I have to get \$1,000, I get only \$10, which is 10 percent and comes late," Rao said at his home-office in the green campus of the premier Indian Institute of Science (IISc) in the city centre....

Source: <http://articles.economictimes.indiatimes.com/>, 17 November 2013.

India will become a leader in nuclear energy with new technology which is being used for the first time to build a fast breeder reactor to generate 500MW at Kalpakkam near Chennai.

India Says Domestic Plant Operators Can Limit Global Nuclear Suppliers' Liability

To allay global nuclear suppliers' fears about India's nuclear liability laws that have deterred potential

investors, the country is now telling the world's nuclear industry that the domestic plant operator can limit the amount as well as duration of the liability that accrues to foreign suppliers. Planning Commission deputy chairman Montek Singh Ahluwalia,...conveyed this interpretation of the 2010 nuclear liability law in a meeting with Canada's industry leaders late last month.

The Congress-led UPA had worked overtime in its first innings to secure a new nuclear cooperation regime after decades of global isolation, but it has been unable to jumpstart its massive nuclear power agenda as vendors from around the world have stopped in their tracks over what they have labelled as unviable liability laws.

Ahluwalia said that the Indian Nuclear Liability Law includes a provision that allows the plant operator in India to limit, in both amount and duration, the liability that the operator can pass through to suppliers so that the liability is bounded and therefore, insurable," a Canadian industry official aware of the development told ET. The official was present at a round-table meeting of the Canada-India Business Council on 29 October 2013, where Ahluwalia responded to concerns raised about the 2010 liability law by Canadian nuclear industry leaders. Some of them, however, remained sceptical and would like to see "hard evidence" to back his assertion.

Apart from nuclear reactor technologies and equipment, Canada could also be a major uranium supplier for India's nuclear energy ambitions. But the country's leading chemicals majors like Cameco, which could sell uranium to India, are worried that the liability law could apply to raw material vendors too. Top officials from firms like Cameco are in India to discuss potential business links while a larger delegation of nuclear industry executives is flying in later this month November 2013 to ascertain if India's position on liabilities rings true.... Though India had arrived at a nuclear cooperation agreement with the country in 2010, following its acceptance in the global fold, Canada only activated the pact this September.

Source: <http://articles.economicstimes.indiatimes.co>, 19 November 2013.

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PAKISTAN

Pakistan Begins Work on New 2200-MW Nuclear Power Plant

PM Nawaz Sharif on 26 November 2013, laid the foundation stone for a 2200-MW nuclear power plant in Pakistan's largest city that will be built with Chinese help, saying the project was a "leap" in bilateral

cooperation. Sharif described the plant as the country's biggest power project that would be another step to end energy outages. He said the project would be executed with China's cooperation.

Addressing a ceremony here, Sharif said China is cooperating with Pakistan in several areas, including the power sector. "We are proud of China's support," he said, adding the friendship between the two countries is deeper than the oceans and higher than the Himalayas. The project marked a "leap" in bilateral cooperation, he said. Sharif said his government is determined to change Pakistan's fate and make it prosperous and developed. Other power projects, including the Bonji Dam, will be initiated, he said.

The government wants to develop Karachi as a modern city like Dubai, Kuala Lumpur and Hong Kong, he said. The nuclear plant is expected to be completed in six years. Several countries, including the US, have expressed concern at China's role in setting up new nuclear power plants in Pakistan, saying the projects violate international guidelines. Pakistan and China have dismissed these concerns.

Source: <http://zeenews.india.com/>, 26 November 2013.

NUCLEAR COOPERATION

AUSTRALIA- INDIA

Nuclear Deal: Australia's Uranium Deal with India May Include Weaker Monitoring Safeguards

Australia's agreement to sell uranium to India could include weaker monitoring safeguards than the nuclear deals Australia has with other countries. A third round of nuclear cooperation agreement talks are due to take place later this November 2013 and both governments say they want the deal settled quickly.

In the past, Australia has required countries to which it sells uranium to track the material more closely

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than is required by the IAEA.... Speaking in New Delhi, Australia's Foreign Minister, Bishop, told the ABC she was reluctant to comment on the talks while they were underway... Relations between Australia and India soured when the Rudd-government cancelled plans to sell uranium to India as it is not a signatory to the NPT. The Gillard government reversed that position in a move supported by the Coalition. India is not a signatory to the NPT and only in recent years started taking steps to separate its military and civilian nuclear programs. Last year, a report from the Indian auditor-general found the country's nuclear safety regulator was weak and unable to properly monitor the industry.

Source: <http://www.abc.net.au/news/>, 19 November 2013.

CANADA-KAZAKHSTAN

CNA Welcomes Nuclear Cooperation Agreement with Kazakhstan

Canada's nuclear industry is expected to gain significant benefits from Canada and Kazakhstan signing a nuclear cooperation agreement, CNA said on 15 November 2013. The agreement was an important part of government efforts to strengthen Canada's prosperity and create employment through export trade initiatives. The agreement was signed in Astana this week by Canadian Foreign Affairs Minister Baird and Kazakhstan deputy PM and Minister of Industry and New Technologies, Issekeshv. The nuclear cooperation agreement – together with the administrative arrangements – would enable Canadian and Kazakh companies to export and import controlled nuclear materials, equipment and technology under safeguards applied by the IAEA. The two countries had concluded negotiations on the text of a nuclear cooperation agreement and signed a letter of intent in September 2009.

...This agreement will provide access for members of Canada's nuclear industry to Kazakhstan's growing nuclear market and allow our industry to export controlled nuclear materials, equipment and technology, which will create jobs and bring economic benefits to Canada," said CNA president Barrett. Canadian uranium miner Cameco has

The nuclear cooperation agreement together with the administrative arrangements would enable Canadian and Kazakh companies to export and import controlled nuclear materials, equipment and technology under safeguards applied by the IAEA.

also welcomed the accord. Cameco said the cooperation agreement opened opportunities to advance its partnership with Kazatomprom, which would strengthen its business and support continued growth...

Source: <http://www.miningweekly.com/>, 15 November 2013.

CHINA-ROMANIA

China to Invest In Romanian Nuclear Power

China's PM says his country will invest in Romanian nuclear and wind energy production as well as a high-speed railway. Li Keqiang arrived in Romania a day ahead of a summit with leaders from Central and East European countries. Romanian and Chinese officials signed various deals to co-operate in nuclear and thermoelectric energy projects and to resume beef and pork exports. No values for the deals were disclosed. Romanian exports to China have tripled since 2008 and bilateral commerce this year amounted to \$US3.27 billion (\$A3.5 billion), according to Chinese authorities. It was the first visit by a Chinese prime minister to Romania in 19 years. Li said the visit "consolidates reciprocal political trust".

Source: <http://www.couriermail.com.au/>, 26 November 2013.

INDIA-FRANCE

Negotiations between the DAE and French company Areva over the Jaitapur Nuclear Power Plant (JNPP) in Maharashtra have hit a hurdle as DAE has questioned the capacity of reactors to generate electricity and its high cost. The bone of contention between the two is the generation of electricity by the EPR reactor, which Areva is planning to give to NPCIL.

DAE sources pointed out that the department has raised objections because the "reference plant", which was agreed upon between DAE and Areva, was a plant that generated 1430 MW of electricity, but it says, Areva now wants a plant with enhanced power generation capacity. A reference plant is a nuclear power plant project that has already been tested, commissioned and which has commercially started generating power.

DAE sources pointed out that the department has raised objections because the "reference plant", which was agreed upon between DAE and Areva, was a plant that generated 1430 MW of electricity, but it says, Areva now wants a plant with enhanced power generation capacity. A reference plant is a nuclear power plant project that has already been tested, commissioned and which has commercially started generating power.

According to a top DAE official, the reference plant for building reactors

was one at Flamanville nuclear plant in France, which Areva mentioned with a capacity of 1430 MW. But it has now asked the DAE to enhance the power generation capacity to 1600-1700 MW. The DAE has raised an objection to this, the official said.

"The problem here is Areva is asking us to enhance the power generation capacity. The reference plant mentioned by Areva has not generated electricity between 1600 MW and 1700 MW with this technology. The EPR technology is first of its kind. More importantly, if the technology has been enhanced, even then the reference plant cannot be changed," the official said. The AREB whose nod at various stages of building a nuclear plant is mandatory, too has raised concerns about it. "Areva has said that it will get an enhancement certificate for the plant from French Nuclear Regulatory Body, but we have doubts about this," he said.

According to Areva's website, it is building EPR reactors for nuclear plants in Finland, UK, China and France. Of these, Olkiluoto 3 in Finland is a 1600 MW project, while two reactors for the Taishan plant in China are of 1660 MW each. The Hinckley Point plant project in United Kingdom has two EPR reactors of 1600 MW each and the Flamanville 3 nuclear plant is 1630 MW. A well placed source in Areva, who refused to be quoted, however, denied it.

"Flamanville 3 has been a reference plant for the Jaitapur project. From the very beginning of the discussions regarding Jaitapur, Areva proposed its EPR design, which is a 1600 MW plant," the source said. Another factor is the issue of the price per unit. Sources said that the price per unit for the JNPP comes to more than Rs 9 in 2021, which, according to the DAE is very high. The initial capital cost for the project per MW is between Rs 27-30 crore. The cost per unit for the Kudankulam Nuclear Power Plant Project (KKNPP) unit I and II is between Rs 3.50 and Rs 4. The cost for the KKNPP III and IV is also under negotiation. "Even if we take inflation into account, this rate is too high. We have conveyed that the maximum cost can be Rs 6 per unit," the official said. He also pointed out that both the sides are negotiating hard, but India has made it very clear that it won't accept this high cost for producing energy. "We have made it clear that unless the cost comes down, we would not be able to go ahead. Senior French government officials have assured us that they will look into the matter, so that the cost comes down," the official said.

The JNPP project in five villages- Madban, Karel, Mithgawane, Varilwada and Neveli villages- in coastal district of Ratnagiri in Maharashtra, some 350 kms south of Mumbai, is to have six nuclear reactors with the capacity of 1650 MW each with French cooperation.

On ground zero, despite the agreement of few groups to the project, the opposition still exists. According to Pravin Khade, the sub-divisional officer of Rajapur tehsil/ taluka (where the site falls), there are some 2336 Project Affected People (PAPs), of which 1311 PAPs have accepted compensation of Rs 11.20 crore and Rs 3.57 crore is yet to be accepted. As per the new compensation package announced by the Maharashtra government in February 2013, Rs 155.61 crore have been disbursed to 1240 people, while the remaining Rs 55.44 crore is yet to be accepted by people. After the plant is fully commissioned, Maharashtra will be the highest nuclear power producing state with it producing over 11,000 MW of electricity (if combined the JNPP and Tarapur Atomic Power Plant, north of Mumbai), the highest in the country.

Source: <http://www.dnaindia.com/>,

24 November 2013.

NUCLEAR PROLIFERATION

NORTH KOREA

N. Korea Can Produce Uranium-Based Nuclear Bomb: Seoul's Defense Chief

North Korea has made progress in its nuclear weapons program to a level that it can produce weapons-grade uranium to make a bomb on its own, South Korea's defense chief said. "We evaluate that North Korea can build a nuclear weapon using uranium," Defense Minister Kim Kwan-jin said during an interpellation session at the National Assembly, giving a rare assessment on the reclusive nation's nuclear program. Defense Minister Kim Kwan-jin speaks during the interpellation session on foreign affairs, defense and unification held at the National Assembly.

In regard to North Korea's 5-megawatt reactor that was reactivated in April 2013, Kim said Seoul is closely monitoring activities at the Yongbyon complex where a uranium enrichment plant and a reactor are located... Pyongyang aims to become a "nuclear weapon state" to take the initiative in the six-party nuclear freeze deal and consolidate power domestically, Kim said. The North has conducted three nuclear tests of increasing power since

2006, most recently in February. It is not yet known whether the recent test involved a plutonium or a uranium-based device.

The communist state is believed to have a handful of crude plutonium-based bombs, and Seoul officials believe it is ready to conduct the fourth test any time at its test site in the northeastern tip. Last week, South Korea's Vice Defense Minister Baek Seung-joo said that

Pyongyang is expected to acquire 6 kg of weapons-grade plutonium by the end of next year if the Yongbyon nuclear reactor continues to operate in the current phase. Many experts estimate, however, that Pyongyang has not yet mastered the miniaturization technology needed to mount a warhead on an inter-continental missile capable of reaching the US shore.

The development further complicates the long-stalled efforts to stop a nuclear program that Pyongyang has vowed to expand, despite international condemnation and sanctions already placed on the impoverished state. Fuel for North Korea's plutonium bombs has been made in a reactor that is large and easily monitored. But uranium-based weapons are more difficult for outsiders to investigate because the centrifuges needed to enrich uranium for bombs can be easily hidden from satellites.

Source: <http://english.yonhapnews.co.kr/>, 20 November 2013.

NUCLEAR NON PROLIFERATION

AUSTRALIA-INDIA

Australia to Back India for Nuclear Watchdog Group Membership

Australia will back India's full membership into the exclusive NSG - a non-proliferation watchdog set up specifically in response to India's first nuclear test in 1974, foreign minister Julie Bishop said in New Delhi on 18 November 2013... In 2008, Australia backed an NSG consensus decision to grant India a waiver from existing rules that prevent signatories to the NPT from selling nuclear material or technology to countries outside the agreement. India aims to increase its nuclear

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power component to 25 per cent of all energy sources in the next few decades and many NSG members, including the US, UK, France and Russia, are keen to sell it civilian nuclear technology.

Bishop said the government had given "detailed consideration" to supporting India's membership and "believe it's appropriate given India's strategic importance in our region and globally, and given India's record of non-proliferation". India's foreign minister Salman Kurshid said the decision combined with the reversal of the uranium ban demonstrated a high degree of trust between the two nations...

Source: <http://www.theaustralian.com.au/>, 19 November 2013.

IRAN

Iran Takes First Step towards Nuclear Cooperation

Iran and the UN's nuclear chief reached a deal on 11 November 2013 to allow expanded monitoring of the country's nuclear sites, including at a planned reactor. The agreement could boost wider negotiations over Tehran's atomic program. Although the deal is a step forward in Iran's cooperation with the UN nuclear watchdog agency, the initial "roadmap" for deeper inspections does not mention some of the sites most sought by UN teams, notably a military facility outside Tehran, to probe suspicions of nuclear-related work.

...In Abu Dhabi, US Secretary of State Kerry dismissed claims of serious rifts within the six-nation bloc, saying their positions were united and Iran was not able to accept latest offers made during talks in Geneva "at that particular moment", suggesting there was room for more progress at the next rounds beginning 20 November 2013.

The framework would give IAEA teams access to a key uranium mine and the site of a planned heavy water reactor, which produces a greater amount of plutonium byproduct than conventional reactors. The IAEA also received clearance for a visit to the Gachin uranium mine near the Persian Gulf port of Bandar Abbas. The deal also calls for Iran to provide more details

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Source: <http://www.bangaloremirror.com>, 11 November 2013

Iran Nuclear Deal Consistent With Our Stand, Says India

India has said that the two-stage deal Iran struck with the US and five other world powers on its nuclear programme was consistent with the position it had taken with Russia, Brazil, China, South Africa and other like-minded countries. It also hoped the negotiators would display the same sense of accommodation as they did in the run-up to the agreement to clinch a final settlement over the next two months. Syed Akbaruddin, spokesman of the MEA, emphasised the point about the two-stage process: one was the agreement reached on Saturday between Iran and P5+1 (the US., the UK, France, Russia, China and Germany); and the other was between Iran and the IAEA, done on 11 November 2013.... New Delhi also welcomed the agreement with the IAEA, which Mr. Akbaruddin said "is the only competent technical agency to verify the exclusively peaceful nature of Iran's nuclear activities..."

Officials of the MEA admitted that India had "nothing much to do with the process" that led to the agreement between Iran and P-5+1. But the mood in the run-up was upbeat among Iranian officials they interacted with. "Anything that improves Iran's economy would be useful. India-Iran ties did not gain much traction because of sanctions. The withdrawal of the sanctions will benefit the ties," a senior official said.

Another official said the agreement was consistent with India's stand that the issue should be resolved diplomatically, with the recognition of Iran's right use nuclear energy for peaceful purposes and in accordance with Iran's international obligations as a non-nuclear weapon state....

Source: *The Hindu*, 26 November 2013.

USA-RUSSIA

20-Year US-Russian Nonproliferation Program Ends

A 20-year program to convert highly enriched uranium from dismantled Russian nuclear weapons into fuel for US power plants ended 14 November

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2013, with the final shipment loaded onto a vessel in St. Petersburg's port. The US Energy Department described the program, commonly known as Megatons to Megawatts, as one of the most successful nuclear nonproliferation partnerships ever undertaken. The agreement, signed

in 1993 shortly after the collapse of the Soviet Union and always scheduled to end in 2013, gave Russia the financial incentive to dismantle thousands of nuclear weapons. The initial aim was to help keep the vast stockpiles of weapons-grade uranium out of the hands of terrorists and to make sure Russia's nuclear workers got paid at a time when the country was nearly bankrupt.

Under the program, 500 metric tons of highly enriched uranium, the equivalent of about 20,000 nuclear warheads, was converted into fuel for US nuclear reactors. During the past 15 years, the fuel has generated 10 percent of US electricity, or nearly half of all commercial nuclear energy... While monitored by the US and Russian governments, the contract has been carried out by two commercial companies: the US Enrichment Corporation and Techsnabexport...

Source: <http://world.time.com>, 14 November 2013.

NUCLEAR SAFETY

JAPAN

Japan to Begin Safety Checks of World's Largest Nuclear Power Plant

Japan's nuclear watchdog said, it will begin safety assessment required to restart TEPCO Kashiwazaki-Kariwa nuclear reactors power plant, paving the way to reactivate the world's largest nuclear complex. The decision by the NRA came after TEPCO, operator of the tsunami-crippled Fukushima Daiichi nuclear plant, announced new steps on to improve the tough working conditions at the Fukushima plant following the NRA's suggestions. TEPCO applied for safety inspections of the No. 6 and No. 7 reactors at the plant in Niigata Prefecture in central Japan..., but the NRA has not started the official review process amid concerns over the utility's poor handling of the cleanup at the Fukushima plant.

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...With no nuclear reactors in operation, embattled TEPCO is desperate to reactivate the Kashiwazaki-Kariwa reactors to a return to profit. The facility is the world's largest nuclear power plant with a combined output capacity of 8.2 million kilowatts. The NRA's safety assessments will take at least six months, and the utility must also obtain the consent of local communities to restart the reactors before the final go-ahead. All 50 of Japan's commercial reactors are currently online in the wake of the Fukushima accident.

TEPCO's Fukushima plant, located 230 km north of Tokyo, was crippled in March 2011 by the magnitude-9 earthquake and tsunami that caused explosions, meltdowns and massive leaks of radioactive material as the world's worst nuclear accident since the 1986 Chernobyl catastrophe. The government introduced tough new safety requirements for nuclear power plants in July 2013, which were adopted based on lessons from the Fukushima disaster.

Under the new standards, nuclear power plant operators are obliged to take concrete steps to prepare for radiation leaks in case of severe accidents, such as huge tsunami and reactor core meltdowns. The power companies are also required to install an emergency control center to guard against acts of terrorism and natural disasters. Life of nuclear reactors shall be limited to 40 years in principle, with an extension of up to 20 years allowed if safety is confirmed.

Source: <http://www.kuna.net.kw>, 13 November 2013.

UKRAINE

State Supervision of Nuclear Safety to Be Enhanced

Ukraine's Cabinet of Ministers on 13 November 2013 adopted the Resolution "Approval of Procedure for state supervision over compliance with nuclear and radiation safety requirements"... Experts say the order provides state inspectors on nuclear and radiation safety with the opportunity to use of grants of authority provided for in existing legislation. At the same time, the procedure approved by Cabinet will help reduce the regulatory pressure on business entities in the field of nuclear energy, provided there is strict adherence to safety requirements and works have a negligible degree of risk for people and environment.

Government analysts say that the Cabinet allocated an additional 4.298 billion UAH (excluding VAT) to implement

the Program to improve safety at NPP units in 2013-2017. This amount will be partially received from sale of electric and thermal energy produced at NAEC Energoatom facilities on the domestic market. Previously, the Cabinet also approved the approximate total funding for the Program – 12.5 billion UAH for the entire period of its validity through 2017.

Ukraine belongs to a few countries with a large-scale program of nuclear energy utilization for peaceful goals: in economy, medicine, science, and agriculture. In particular, Ukraine is ranked 4th in Europe and 7th in the world by the installed capacity of NPPs. In addition, Ukraine is realizing the ambitious plans to develop the nuclear-industrial complex: building of power units No 3 and 4 at Khmelnytsky NPP, centralized storage of spent nuclear fuel for Ukrainian NPPs, nuclear fuel plant, New Safe Confinement (Object Shelter), etc.

Source: <http://en.for-ua.com>, 15 November 2013.

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USA

Safety Lapses at Vermont Yankee

After the 2011 disaster at Japan's Fukushima power plant, the NRC began taking a closer look at the ability of plants of a similar design to withstand flooding, including Entergy's facility in southern Vermont. While the Vernon, Vt., reactor isn't likely to be overcome

by a tsunami, it sits alongside the Connecticut River, which is prone to flooding. The NRC took the risk of flooding seriously, but we now know Entergy did not. This month, an inspection again found missing flood seals on manholes at the Vernon plant, for the third time in 18 months. Given the breach, had flooding come, it could have compromised the nuclear plant's electrical systems, the NRC said.

In Japan, when a 43-foot tsunami overwhelmed a 10-meter seawall, incoming water disabled diesel generators. Without them, the plant could not cool fuel rods, resulting in the worst release of radioactive material since the 1986 Chernobyl disaster. The NRC discovered this month that Entergy failed to fix a missing flood seal between a manhole and what's known as a switchgear room. Its absence "compromised the flooding design of both the east and west switchgear rooms," the agency said.

Entergy says it ordered immediate repairs and vowed to re-inspect other flood seals. It laid blame on a contractor hired to fix the problem last spring that did not complete the work. The NRC rightly holds the plant responsible for

failing to see that repairs were made. This isn't a case of over weaning regulation. An NRC inspection 19 March 2013 found that water from a dredging operation did manage to leak into manholes leading to "vital" switchgear rooms. The plant was closed at the time for refueling.

In later inspections last March 2012, the NRC found problems with a partially dislodged flood seal and, four days later, observed that flood or rainwater would have gotten into the manholes. That all came after similar problems had been identified the year before.

After 40 years of operation, the plant's days are numbered. Entergy announced in August it will close Vermont Yankee at the end of next year (2014). The big question now is how Entergy will handle the plant's decommissioning. The company may have less of a financial incentive to invest in the plant's safe operation. But as long as its reactor operates, Entergy must be held by the NRC to the highest safety standards.

Source: <http://www.gazettenet.com/>, 25 November 2013.

NUCLEAR WASTE MANAGEMENT

JAPAN

Nuclear Power Plants in Disarray: Lack of Waste burial Site to Delay Tokai Reactor Decommissioning

Work to decommission the nation's first commercial nuclear reactor cannot start for the simple reason there is still no disposal site for radioactive waste. Japan Atomic Power Co. looks set yet again to postpone dismantling of the reactor of the Tokai nuclear power plant in Ibaraki Prefecture, sources said. The task was originally scheduled for fiscal 2011 and then put off until fiscal 2014.

...The plant started operations in 1966 and was shut down in 1998. It is the first commercial reactor slated for decommissioning in Japan. Decommissioning will generate 27,800 tons of low-level radioactive waste. Of that, 1,600 tons, such as control rods and reactor components, must be buried at a depth of 50 to 100 meters. Under the plan approved by the industry ministry in 2006, the reactor was to be dismantled over six years from fiscal 2011. The cost of decommissioning was estimated at 88.5 billion yen (\$883 million). No disposal site has since been

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selected. The NRA has yet to set safety standards for a disposal site, citing the absence of such a facility.

The government is weighing the feasibility of building a disposal site in Rokkasho, Aomori Prefecture, where Japan Nuclear Fuel Ltd., set up by electric utilities, is building a spent nuclear fuel reprocessing plant.

The company started a study on the disposal of radioactive waste from decommissioning in 2002, building a facility 100 meters under the ground on the site. The study has been taken over by the Radioactive Waste Management Funding and Research Center, affiliated with the industry ministry.

Still, officials of both Rokkasho village and Aomori Prefecture said they have no intention of accepting any radioactive waste. Before the triple meltdown at the Fukushima No. 1 nuclear plant in 2011, the government estimated that 50,000 tons of radioactive waste to be buried underground would be generated from decommissioning and other work by 2030.

...Tokyo Electric Power Co. has decided to decommission four crippled reactors at the Fukushima No. 1 plant and is also considering decommissioning the remaining two. The nuclear reactor regulation law, revised after the Fukushima disaster, limits the operating life of a reactor to 40 years, in principle... Japan has yet to find a burial site also for high-level radioactive waste from planned reprocessing of spent nuclear fuel from power plants, a point underlined by former PM Junichiro Koizumi in his call for a nuclear phase-out.

The Nuclear Waste Management Organization, affiliated with the industry ministry, solicited municipalities that would host a final disposal facility for radioactive waste in 2002. The town of Toyo in Kochi Prefecture was the only one willing to accept the facility, but the town government soon retracted its offer in the face of opposition from residents. The government plans to reprocess all spent nuclear fuel from power plants for recycling, but the completion of the Rokkasho reprocessing plant has suffered repeated delays.

Nuclear plants around the country are holding a combined 17,000 tons of spent nuclear fuel in storage pools, and many pools are expected to be filled up within several years. ...In

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the early stages of the Fukushima nuclear disaster, it was feared that a large amount of radioactive materials would be released if the No. 4 reactor pool lost water and nuclear fuel was exposed.

In April, Fukui Governor Issei Nishikawa called on Makoto Yagi, president of Kansai Electric Power Co., to secure intermediate storage facilities for spent nuclear fuel, citing urban areas, possibly Osaka, as candidate locations. ...In response, Kansai Electric created a task force in June 2013 and also set up a council to promote the project, headed by the president, the following month. Fukui Prefecture hosts the electric utility's three nuclear plants, including one located in Mihama town.

However, Mihama Mayor Jitaro Yamaguchi acknowledged that it will be impossible to win the support from electricity-consuming areas for Nishikawa's proposal. Kansai Electric has also assigned only four employees exclusively to the project, although the utility emphasizes company-wide efforts.

All of the nation's 50 nuclear reactors have been taken offline in the aftermath of the Fukushima nuclear disaster. Five utilities have applied to the NRA for safety screenings to restart 14 nuclear reactors. Screenings for some reactors are expected to be completed early next year.

Source: <http://ajw.asahi.com>, 18 November 2013.



Centre for Air Power Studies

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