



A FORTNIGHTLY NEWSLETTER ON NUCLEAR DEFENCE, ENERGY AND PROLIFERATION FROM
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OPINION – Vijay Shankar

State of Play: Non-Proliferation, Fissile Material Cut Offs and Nuclear Transparency

Tools that promote a stable nuclear relationship between nations are characterised by a congruence of views on non-proliferation of weapon and vector technologies, fissile material control and strategic transparency; the last makes clear the strategic underpinnings that motivate weapon programmes. The NPT, which was negotiated in 1968 and entered into force in 1970, is the corner stone of all international efforts to provide stability within the bounds of a globally 'iniquitous' nuclear regulatory system by limiting access to nuclear weapons. The impetus behind the NPT was a stated concern for the safety of a world with many nuclear weapon States.

It was recognised that the Cold War deterrent relationship between just the US and the Soviet Union was fragile. Having more nuclear weapon States would reduce security for all, multiplying the risks of miscalculation, accidents, unauthorised use of weapons and the hazards of regional tensions escalating to nuclear conflict. The concept of the NPT process was formulated by Frank Aiken, Irish MEA, in 1958. A total of 190 States have joined the Treaty, though North Korea,

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which acceded to the NPT in 1985 but never came into compliance, announced its withdrawal in 2003. States that have never joined the NPT are India, Israel, and Pakistan.

The NPT is, unfortunately, a flawed treaty; while its origins pre-date the Cuban Crisis, it was the fragility of the existing fraught relationship between the two super powers that pushed leadership towards a pact that restricted possession of nuclear weapons. Based on a 'bargain' that traded denial of nuclear weapons for peaceful use technologies, it distinguishes between three categories of States: nuclear-weapon States, non-nuclear weapons States, and thirdly States that are not signatories of the

Treaty in possession of nuclear weapons. Many of the non-nuclear weapons States agreed to forego nuclear armament because the nuclear-armed States made a promise that in return they would work towards nuclear reductions with the ultimate aim of abandoning all nuclear weapons and because the nuclear have-nots had been promised support in making strictly peaceful use of nuclear energy. The system has not

evolved to find a status for the last category of players whose security needs were neither addressed nor any remission given.

Western thinking (by which is implied the nuclear haves) on the matter is, regrettably, dominated by only two issues: how best to retain the power exclusivity of the 'Nuclear Club' and the situation in the Middle East. Questions related to nuclear proliferation, hazards of non-State actors gaining access to nuclear weapons and stability of nuclear relations, on the other hand, have taken a back seat. The US and Russia, as the States with by far the biggest nuclear arsenals, have neither shown the imagination nor the will to formulate a new dispensation that holds nuclear stability as a function of enforceable transparency and an acceptance of No First Use as an inviolable first step towards disarmament.

On the ground, the US accuses Russia of violating the INF treaty that commits both sides to abolishing their intermediate-range nuclear arms; there is no progress in matters of multilateral nuclear disarmament; the entry into force of the CTBT is a distant illusion as the US

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In the absence of globally accepted regulatory regimes not only are conflictual situations likely to arise and have indeed arisen, but there is also a necessity that these conflicts remain restrained; this is where the deterrent value of nuclear weapons plays a role till such time that an alternate disincentive can be devised. It is also for this reason that nations are increasingly demanding reliable extended nuclear deterrence.

has still failed to ratify the treaty; there are no negotiations or an agreed agenda over stopping the production of fissile material for military purposes; the Geneva Conference on Disarmament that is intended for this purpose cannot agree on the principles that will govern the Treaty. While transparency in arsenals and doctrines has been rendered opaque as nuclear weapon States have found new reason to enlarge and modernise. In

this milieu 'Global Zero' remains a Utopian ideal.

The 'cardiac' arrest in the nuclear disarmament agenda is more symptomatic of the growing perception that in an uncertain world, nuclear weapons provide a persuasive argument for strategic stability. During the Cold War, strategic doctrines relied heavily on nuclear weapons for their deterrent effect; it resulted in a veritable freeze in the probability of war in Europe. Today, while the picture may have changed due to

tensions of the multipolar and the competitive tyranny of economics, the need to underscore the boundaries of inter-State behaviour remains an imperative.

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is also for this reason that nations are increasingly demanding reliable extended nuclear deterrence. The escalating friction in the South and East China Seas; the war in Ukraine where a nuclear-armed

Moscow has arrogated Crimea (and parts of eastern Ukraine) in defiance of the December 1994 Budapest Memorandum; the seemingly irrational nature of North Korea's nuclear threats; the continued existence of nuclear black market networks of AQ Khan notoriety; the appearance of non-State actors into the equation and China's programme of nuclear proliferation which has nurtured and continues to sustain and enlarge Pakistan's nuclear weapons programme, are all demonstrative of the current apocalyptical state of play.

For many nations, this has reinforced the impression that possession of nuclear weapons adds-up to strength, protection, and inviolability; while foregoing nuclear weapons can threaten the very existence of the State. As the importance of nuclear weapons increases in a geopolitical environment of uncertainty the prospects of stability becomes bleaker.

An appraisal of the contemporary universal state of nuclear affairs will suggest that the three pillars of global nuclear stability, namely, non-proliferation, control of fissile material production and transparency of nuclear arsenals are wobbly for lack of foundational support. And in the trunancy of global foundational support, the answer may well lie in establishing a regional framework of détente.

Source: <http://www.eurasiareview.com>, 09 March 2015.

OPINION – Fransisco Galamas

Asia and the 2015 NPT Review Conference

Can the Nuclear NPT Review Conference help prevent future crises from escalating? Since its ratification in 1970, the NPT has become one of the main pillars of the nuclear non-proliferation mechanisms. In 2015, state parties to the NPT gather in a Review Conference (RevCon) to ensure that both the NPT provisions and the major nuclear

proliferation challenges are being properly addressed. Given that seven of the world's nine nuclear powers are in Asia, it is important to understand the main nuclear proliferation challenges that this continent presents to the 2015 RevCon.

Some of the unavoidable topics surrounding this diplomatic assembly will be the ongoing disputes involving nuclear programs in two countries: Iran and North Korea. Pyongyang acceded to the NPT in 1985, but in 2003, after dismissing the Agreed Framework, it withdrew and resumed its nuclear program. Twelve years, numerous ballistic missile tests, and three nuclear tests later, we are likely to witness a 2015 RevCon making renewed calls for Pyongyang to halt all nuclear and ballistic missile activities.

While such calls are hardly unprecedented, it is important for parties to the NPT to understand that the more evolved the North Korean nuclear and ballistic missile program gets, the more difficult the negotiations become and the less credible the nuclear non-proliferation mechanisms look to the international community.

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way to overcome the current impasse could involve the restart of the Six-Party Talks with more flexible preconditions that do not require the complete dismantlement of North Korea's nuclear infrastructure. It may not be a complete solution, it is certainly better than dealing with a North Korea steadily moving forward on its nuclear weapons program.

Another very important issue for the NPT concerns the Iranian nuclear program. In November 2013, Teheran and the other P5+1 States adopted a Joint Plan of Action to address pending issues surrounding the hypothetical non-civilian traits of this nuclear program. Even though a final agreement would certainly constitute an important triumph for non-proliferation diplomacy, caution is needed to fully understand how the region may react to a final agreement. Not only has Israel

publicly stated its opposition to any deal that might see Iran retain any nuclear infrastructure and indigenous uranium enrichment capability, the reaction of other countries in the region – namely Saudi Arabia – remains a question mark. In recent years, Riyadh has made moves to start its own civilian nuclear program, including agreements with the French nuclear companies Areva and EDF. Although the legality of civilian nuclear programs is not questioned by the NPT provisions, accounts report a Saudi interest in uranium enrichment technology that could indicate nuclear non-civilian interest.

As one nuclear crisis moves closer to a diplomatic resolution, it is imperative that the NPT's nuclear weapons states are able to contain any repercussions that emanate from the Iranian nuclear resolution and prevent any additional erosion of the NPT's credibility.

Moreover, in 2013 the BBC reported on a Saudi Arabia-Pakistan nuclear pact, yet unconfirmed, in which Islamabad manufactures a nuclear weapon for the Saudis. As one nuclear crisis moves closer to a diplomatic resolution, it is imperative that the NPT's nuclear weapons states are able to contain any repercussions that emanate from the Iranian nuclear resolution and prevent any additional erosion of the NPT's credibility.

Even taking into consideration its policy of nuclear ambiguity, news related to the acquisition of new nuclear-capable submarines make clear that Israel intends to keep its nuclear weapons and reinforce its second strike capability, which places an added hurdle in front of this disarmament effort.

During the last RevCon, in 2010, one of the most important planned initiatives envisioned the implementation of a Weapons of Mass Destruction Free Zone (WMDFZ) in the Middle East. In fact, this proposal was presented at the 1995 NPT RevCon but in 2010 the idea found renewed support. Although Syria's accession to the CWC and Iran's suspension of most of its nuclear activities may sound like good omens for the establishment of a WMDFZ in the Middle East, the chances of an agreement remain remote. Aside from the Saudi interest in nuclear infrastructure and its alleged agreement with Pakistan, Israel remains the sole nuclear power in the Middle East and a state that is not party to

the NPT. Even taking into consideration its policy of nuclear ambiguity, news related to the acquisition of new nuclear-capable submarines make clear that Israel intends to keep its nuclear weapons and reinforce its second strike capability, which places an added hurdle in front of this disarmament effort. Other challenges for a WMDFZ are linked to the Egyptian lack of accession to the CWC and the Biological and Toxin Weapons Convention (BTWC). Hence, in spite of several meetings held over the past few years to debate the adoption of a WMDFZ, there is no evidence of progress.

Although they are not parties to the NPT, previous RevCons have always stressed the need to persuade India and Pakistan to join the treaty. These outreach initiatives should be seen as one of the most important objectives for the NPT's future, as both countries are strengthening their nuclear arsenals with significant strategic implications across the region. Pakistan, for instance, is believed to be developing the nuclear-capable short-range ballistic missile called the Nasr, estimated to have a range of 60 km. With operational TNWs, Islamabad may find itself lowering the threshold of nuclear weapons use as this particular type of weapon is seen as more likely to be used accidentally or without authorization, and blurs somewhat the distinction between conventional and nuclear weapons.

India, meanwhile, has invested heavily in its nuclear military nuclear capabilities, for instance modifying the Agni-V ICBM to enable it to carry MIRV warheads. By adopting these particular warheads, India risks destabilizing the nuclear deterrence dynamic with its nuclear rivals

– Pakistan and China – as increasing the number of warheads not a single missile generates additional benefits in a first strike. With this scenario in mind, the NPT RevCon must start to think about tangible actions that could allow India and Pakistan to address their security concerns and initiate confidence-building measures that can defuse the ongoing nuclear arms race in South Asia, with the ultimate goal of bringing both countries into the NPT.

A nuclear weapons modernization process is also ongoing both in Russia and China, as well as in the other NPT recognized nuclear powers (P5). Beijing and Moscow, probably in an effort to circumvent missile interceptor systems deployed to different regions, are also “MIRVing” some of their ballistic missiles or have improved their missile shield countermeasures, actions that may well ignite a qualitative nuclear arms race among nuclear powers in Asia. Article VI of the NPT clearly states that “Each of the Parties to the Treaty undertakes to pursue negotiations in good faith...on a treaty on general and complete disarmament under strict and effective international control.” Even taking into consideration the fact that the overall number of nuclear weapons has been decreasing, the nuclear modernization programs bluntly demonstrate a lack of interest in a true nuclear disarmament process, at least in the short and medium terms. Consequently, this topic is likely to be the subject of considerable debate during the RevCon and may call into question the credibility of the P5’s nuclear non-proliferation proposals.

Notwithstanding the emergence of new security issues and the Global Zero Movement over the last years, the nuclear factor remains a central

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element of international politics. Given the globally devastating effects of nuclear weapons use, it is essential that the NPT remains a thriving force behind nuclear non-proliferation efforts. However, the states present at the RevCon must be aware that the usual diplomatic jargon will not do; they must rather establish concrete plans

capable of mitigating regional disputes among nuclear powers or other issues that can undermine nuclear non-proliferation endeavours. For Asian participants, the RevCon could be an opportunity to create new confidence building mechanisms among nuclear weapons countries and prevent future crises from escalating.

Source: <http://thediplomat.com>, 02 March 2015.

OPINON – Gerard M. Gallucci

Iran, Israel and the Bomb

The danger in all this is that any agreement reached between the P5+1 and Tehran would be pre-empted by either the US Congress or provocative Israeli actions against Iran. On March 3, Israeli PM Netanyahu addressed a joint session of the US Congress to state his case against President Obama completing an agreement with

Iran on the latter’s nuclear program. Netanyahu apparently believes that any deal would be a bad one.

The American press focused on Netanyahu’s appearance mainly in terms of US domestic politics. The invitation to address Congress came from the Speaker of the House (also the Republican Party leader

there), John Boehner. Boehner may have had foreign policy reasons for giving a foreign political leader an unprecedented opportunity to criticize the sitting US president while himself facing an election back home. But it was primarily another

in a very long line of attacks from Republican conservative extremists on a Democratic, African American, centrist President. That much was simply more of the current American *take-no-prisoners* partisan politics. Using Netanyahu's stridency in an effort to peel away traditional American Jewish support for the Democratic Party was an added "bonus."

The real issue raised by the dispute between President Obama and Netanyahu – one that should transcend politics – is whether it is possible to stop Iran from getting the bomb and at what price. In all likelihood, it is not possible without great cost and perhaps not even then. Going to war with Iran might well lead it to move more quickly to weaponize. Its nuclear facilities are widely spread and some apparently deeply buried. "Surgical" strikes would probably not be sufficient to do more than delay and enrage. It might take an all out war and invasion aimed at toppling the current government to destroy the program. This would require a bloody, costly and lengthy effort. In these circumstances, Israel might at some point decide to use its nuclear weapons to "take out" Iran. Obama understands all this and therefore prefers negotiations even if it just kicks the can down the road a bit by winning a longer "breakout" period – the time between the decision to weaponize and actual production of sufficient fissile material for a bomb.

Israel – at least in Netanyahu's hands – does not want to see its regional nuclear superiority challenged by anyone. It is widely believed that Israel has from dozens to hundreds of nuclear devices. While it is not clear how nuclear weapons can help overcome demographic challenges to the Jewish population in Israel, they do provide a sort of

ultimate defense against any effort to push the Jewish state into the sea (as some Iranians and Arabs have advocated). Israel alone now enjoys the nuclear deterrence. This, with the hitherto dependable US umbrella, shelters it from having to accept political compromise with anyone (and especially with the Palestinians). Iran achieving the capacity for nuclear deterrence would severely restrict the ability of Israel to simply do as it pleases without fear of any significant response. Therefore any

agreement between the nuclear powers and Iran simply lengthening the time needed for Iran to weaponize is unacceptable.

The danger in all this – one heightened irresponsibly by US Republicans playing politics with Netanyahu – is that any agreement reached between the P5+1 and Tehran would be preempted by either the US Congress or provocative Israeli actions against Iran. Either might end efforts to normalize relations between Iran and the outside world. It is such a process of normalization that offers the best hope for eventually reducing the threat of an Iranian bomb.

But more could be at stake if Israel finds a way to draw the US into a military attack on Iran. Such a war might well approach the dimensions of an Armageddon. It is this war that Obama fears.

The Republicans should be ashamed of themselves while Netanyahu should simply face the fate of his own public's judgement on whether his approach best safeguards its interests and security.

Meanwhile, we can only hope that both sides in the current negotiations act in complete cognizance of what is at stake for us all in transforming conflict towards a stable peace.

Source: <http://www.eurasiareview.com>, 09 March 2015.

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OPINION – Hassan Barari

Iranian Strategy in the Middle East

Amid the widely spread perception that the US is slowly but surely disengaging from the Middle East, Iranian leaders are grappling with formulating a strategy to benefit from such eventuality. Explicit in Iran's move in the region is its desire to reshape the Middle East in such a way that would catapult Iran into a prominent regional power. Iranian Supreme Leader Khamenei put his money where his mouth is. Iran's huge influence in four Arab capitals cannot be more obvious. The ability of Iran to reshape the Middle East is in part contingent on the hesitant leadership of US President Barack Obama. For instance, at a time when President Obama is being subject to Republicans' pressure as well as pressure coming from some of his allies in the Middle East to put an end to Iran's nuclear program, he is becoming increasingly reliant on Iran in the battle against the militants of the self-ascribed IS in Iraq.

While Obama seems unwilling to put boots on the ground in neither Iraq nor Syria, Iran is willing to do the job at least in Iraq. This begs the question: How could President Obama rein in Iran's nuclear ambitions when Iranian fighters are helping push back the IS militants in Iraq? Although the American administration insists that it has not coordinated with Iran in the fight against a common enemy, a few would really buy into this pretension. The coordination does not have to be in an overt way, it could be done through Iraqi intermediaries particularly those who have vested interest in getting Tehran's support for sectarian ends.

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Iranians' perception of the decline of the American influence in the region is what drives Iran over the last few years. Key to Iran's strategy to be a regional superpower is developing its nuclear program. After years of defiance, it seems that Iranian leaders internalize that most expedient way to nuclear arms is through an agreement with the US.

Undoubtedly, Iranian forces are helping the Iraqi army hold on against militants, but at what price? To the vexation of the American administration, Gen. Suleimani – accused by the Americans of organizing a deadly campaign against American forces in the past is leading the Iranian forces in Iraq. His pictures of drinking tea on the frontline must have embarrassed the American leadership. Is Iran doing this job just to help the United States with nothing in return?

...In fact, some American officials are keen to see Iran getting involved in an overt job of ejecting the IS. Gen. Dempsey appeared before the Senate Armed Services

Committee on last 03 March and said that the participation of Iranian-backed Shiite militias in Tikrit was a positive step as long as it would not aggravate sectarian tension.... The Iranian-backed Shiite groups have been serving Iran and have been the cause of sectarian tension for years. Needless to say, the Shiite militias committed atrocities against the Sunni Arabs of Iraq and this trend have continued unchecked. That said, one should examine the notion that Iran is adopting a realpolitik approach to the region. Iranians' perception of the decline of the American influence in the region is what drives Iran over the last few years. Key to Iran's strategy to be a regional superpower is developing its nuclear program. After years of defiance, it seems that Iranian leaders internalize that most expedient way to nuclear arms is through an agreement with the US.

As a result, Iranian leaders hope that reaching an agreement with the US would mean one thing for them: Lifting the crippling sanction regime.... The sanction has a grave toll on the Iranian economy

and therefore Khamenei is seeking away to keep Iran's ability to go nuclear while protecting the regime and its ideological pillars. It remains to be seen how the deal would be worked out. But for the time being, the American allies in the region have faith in neither Obama's intentions nor his judgment. In fact, it is not only the nuclear program that annoys other countries in the Middle East but also Iranian expansionism as well....

Source: <http://www.arabnews.com>, 09 March 2015.

OPINION – Muhammad Umar

Nuclear Pakistan

In 2014, US Secretary of State Kerry said, "Pakistan's nuclear assets are in safe hands, its command and control is exemplary, the entire world should follow Pakistan's example." And earlier 2015, Varjoranta, Deputy Director General Safeguards, IAEA, also said that Pakistan has an exceptional record of nuclear safety. Following Varjoranta's visit, Secretary Kerry issued another statement saying, "The US has full confidence in nuclear security in Pakistan and appreciates Pakistan's proactive engagement with the international community including through its hosting of IAEA training activities at its Nuclear Security Centre of Excellence and its active participation in the Nuclear Security Summits."

The point is that Pakistan's nuclear assets are as safe as any other countries nuclear assets. There is no record of a nuclear accident ever occurring in Pakistan, which is something the US cannot claim. Craig talks about the risks for accidents, and security breaches, what he forgets to add is that one of the first-ever nuclear accidents happened in the United States in 1958 at the Y-12 National Security Complex, since then there has been a case of weapon grade uranium

material mishandling at Y-12, and 2014 the site made headlines when a nun broke into the facilities, there have been dozens of other near catastrophic incidents in the US. The most catastrophic accident was the meltdown at the Three Mile Island nuclear reactor near the State capital of Harrisburg in Pennsylvania. Despite their terrible history with nuclear accidents, and security breaches, the Americans remain the highest producers of nuclear energy.

Craig also argues that the ACP-1000 reactors being installed in Karachi are "new and untested," this is not entirely true. The reactor design passed a thorough yearlong safety review conducted by the IAEA. Citing concerns from the opposition, Craig says that the 20-mile proximity of the reactors to a civilian population is a concern. The fact is that the Karachi reactors are as far as they need to be for safe operations. The ACP-1000 has a double containment structure, making a radiation leak impossible, even if it were struck directly with a commercial airplane.... Even if that wasn't the case, what Craig forgets to mention is that in the US, over 18 million residents live within a radius of 20 miles from nuclear power plants, and some as close as three miles.

The fact is that the Karachi reactors are as far as they need to be for safe operations. The ACP-1000 has a double containment structure, making a radiation leak impossible, even if it were struck directly with a commercial airplane.... Even if that wasn't the case over 18 million residents live within a radius of 20 miles from nuclear power plants, and some as close as three miles.

...Craig claims that the world is moving away from nuclear power after Fukushima, this again is not accurate. The US, UK, Japan, China and South Korea are looking at increasing their nuclear energy production. While developing states like India, Iran, UAE, Saudi Arabia, Turkey and Egypt are also moving in the direction of nuclear energy. So, it's okay if they expand their civil nuclear capabilities, but it's bad if Pakistan does it? The next point that Craig makes is that the Chinese sale of nuclear reactors to Pakistan is illegal as per the NSG guidelines because Pakistan is not a member of the NPT.... China committed to selling Pakistan nuclear reactors before becoming members of the NSG....

Pakistan has ensured that this will not happen at the Karachi reactors, because they chose the ACP-1000, this reactor is capable of keeping the core cool for 72-hours even with total power failure in the unlikely scenario of being struck by a natural disaster, which Craig accurately mentions in his report.

...Pakistan has an excellent history operating nuclear power plants; it has never violated any international laws, or norms. And all of Pakistan's nuclear reactors are under IAEA safeguards, for which many prominent world leaders and diplomats have praised Pakistan.... The Pakistan government has taken all concerns seriously. Pakistan has been operating nuclear reactors since 1966, and has an excellent safety record. Pakistan is also a member of CERN.... The fact of the matter is that Pakistan is facing an extreme shortage of energy. As the population grows, so does the demand for energy. Nuclear is the cheapest, most efficient, and environmentally friendly source of energy, and Pakistan must make an investment in it to ensure a bright future. Pakistan's economy cannot grow until the energy crisis is resolved....

Source: <http://www.eurasiareview.com>, 07 March 2015.

OPINION – Yakub Halabi

Nuclear Fee Middle East: The Only Solution to the Iranian Threat

PM Benjamin Netanyahu is right in claiming that the terms of the deal currently being negotiated between Iran and the P5 +1 states over Iran's nuclear project lead, from the political perspective of Israel and the Arab world, to a bad agreement. First, the prospective agreement would leave Iran one year away from being able to produce a bomb. Second the decision of whether to produce a bomb or not is left to Iran's discretion alone, as the P5+1 cannot send monitors to verify on the ground, whether Iran abides by the agreement.

In this case and given the long history of hostility and mistrust between Iran and its neighbors - Israel and the Sunni Arab states - the latter have good reasons to believe that Iran will bluff and thus will sooner or later develop its nuclear arsenal. After all, if Iran has no intentions of bluffing, it should also allow surprise visits by international monitors to its nuclear sites. Yet, contrary to the wishful thinking of PM Benjamin Netanyahu, coercive means of political isolation and economic sanctions against Iran will neither lead to the formation a "good agreement" nor to the elimination of Iran's future nuclear capability.

Given the long history of hostility and mistrust between Iran and its neighbors - Israel and the Sunni Arab states - the latter have good reasons to believe that Iran will bluff and thus will sooner or later develop its nuclear arsenal. After all, if Iran has no intentions of bluffing, it should also allow surprise visits by international monitors to its nuclear sites.

Under these circumstances, the Middle East will be transformed within the medium run from a uni-polar nuclear regional system - in which, Israel is the only nuclear power in the region - into a bipolar and possibly even multi-polar system, as some regionally powerful Arab states, such as Egypt

and Saudi Arabia, will have to provide answers to their new security dilemma.

Given this unprecedented challenge to Israel's security, the Netanyahu government failed to think outside the box. When it comes to national security affairs of this magnitude, however, national leaders should not take any risk and are compelled to explore all available options dictated by new realities. The options available for Israel in the near future are only two: a bi-multi-polar nuclear Middle East or a nuclear-free Middle East.

In my opinion, the next Israeli government should come out with a dramatic initiative of a Middle East clean of nuclear weapons. Israel should declare its genuine intention to strip itself of its purported nuclear arsenal on the condition that all regional powers, including Iran in particular, pledge to do the same and allow monitors on the ground to verify implementation. Israel should initiate an international conference with the participation of the five permanent members of the UN Security Council, Iran and the major Arab

states. The advantage for Israel is a direct role in negotiating a long-term agreement that would keep the Middle East safe from a possible nuclear war or nuclear accident. Under this new reality, Israel should not only join the NPT, but should also demand stricter measures to bolster this treaty.

The alternative is a dangerous multi-polar system in which several regional states possess this weapon of mass destruction. Given the political volatility of the Middle East of unstable authoritarian regimes, coups d'état and religious animosity, regional conflicts could escalate from a conventional war into nuclear war.

By agreeing to a nuclear-free Middle East, Israel could demand an explicit US guarantee to use its nuclear weapon in case Israel encounters an existential threat in the form of a coordinated attack by several Arab states. Israel developed its nuclear reactor in the 1950s when it faced an existential threat. Today, Israel's existence is no longer in question. It should start shifting from its traditional offensive-deterrent strategy to a defensive one and emphasizing multilateral diplomacy.

Source: Yakub Halabi is an Arab citizen of Israel, assistant professor of international relations, Concordia University in Montreal, Canada, <http://www.i24news.tv>, 11 March 2015.

OPINION – D. Aurobinda Mahapatra

India-Russia Nuclear Ties on an Upswing

The India-Russia nuclear cooperation has received a boost with two of the Indian states – Andhra Pradesh and Karnataka – coming forward to offer sites for the establishment of nuclear reactors. This development will add substance to the deals signed during President Vladimir Putin's visit to India last December. During the visit, Putin had proposed to build at least 12 nuclear reactors in India, a country which is growing fast with high energy demands, but without much indigenous resources.

Among various types of energy, nuclear power is considered clean and relatively safe. ... As per a report, in the nuclear reactors in Kudankulam, safety measures have been taken to avoid the Fukushima-type disasters, or other natural havocs like earthquakes. Except the initial heavy costs,

the nuclear energy is also cheaper in comparison to some other sources. As per a report, the cost of one kilowatt-hour of electricity from Kudankulam will be about Rs 3.5.

The saga of the India-Russia energy cooperation, including nuclear energy cooperation, is long. Russia is a significant contributor to India's energy mix, and the potential of cooperation is indeed huge. The negotiation for the building of reactors had started during the Soviet era in 1988. The Soviet collapse brought a pause to the negotiations, and the initial fragility in the post-cold war relations contributed to the slow pace. The Nuclear Suppliers Group pact in 1992 had complicated the scenario. But the relations revived soon. Russian Minister of Atomic Energy signed a deal in New Delhi in 1998 to build two nuclear reactors at Kudankulam. Russia's foreign minister, during a meeting with his Indian counterpart in Moscow in 2005, even said that the NSG could make an exception regarding India and relax the norms so that civilian nuclear energy cooperation could take concrete shape. It may be difficult for India to have such kinds of assurances from other countries.

With the operationalisation of Kudankulam 1 in 2014, the India-Russia nuclear cooperation has acquired a new solidity. The nuclear reactor has added 20 per cent to the existing nuclear generation of electricity in India. The second unit of the power plant will likely be operational soon. There are plans to establish two more units in the plant. During his Delhi visit last year, President Putin had expressed satisfaction at the level of nuclear cooperation. He had said, "We have reached a new level of cooperation. This is not just about trade and services, but this is the creation of the new industrial branch". India's relations with Russia are sometimes taken for granted as they lack the hype associated with the relations with some other countries. It needs, however, to be underlined that the India-Russia partnership is steady – the cooperation in nuclear energy is a clear example in this regard.

For the establishment of the new nuclear reactor, the initial choice was Haripur in West Bengal. As a nuclear reactor requires a lot of water as coolant, it is preferable to have it established where water resources are abundant. The resistance from some local groups, and lack of

support from the populist state government, shelved the plan. As India has a multi-party federal system with powers distributed between the states and the union, it becomes difficult to take a decision. The Indian government had also looked for options in other coastal provinces like Odisha and Kerala, but these states appeared reluctant. With Andhra Pradesh and Karnataka, also coastal states, coming forward, the issue of site for the nuclear reactors has been solved for now.

Karnataka's energy minister described the offer of the site to establish the nuclear plant 'in the larger interest of the state'. He also termed it as an "opportunity." Besides generating energy, the reactors will also provide employment to the local people. Kundankulam nuclear plant will supply electricity to Tamil Nadu, Kerala, Andhra Pradesh, Karnataka, and Union Territory of Puducherry. A large number of the Indian people do not have electricity in their houses. The establishment of nuclear reactors will not only meet the energy requirements of the Indian hinterlands, but also supply energy to its booming sectors of industry. It is likely that by the next year, the work on establishing new nuclear plants will start. By the year 2035 there will likely be 12 more nuclear reactors in India with the Russian support.

In India's nuclear odyssey, Russia has been a steady partner throughout. It has supported India's peaceful exploration of nuclear energy. To give one example of this reliability, when the Tarapore nuclear plant was short of fuel in 2006, Russia promptly came forward to supply fuel. It may sound anachronistic to talk about nuclear weapons in the age of globalisation and cooperative diplomacy, but talks

about nuclear energy and its exploration is not passé. India and Russia have much to gain from mutual cooperation in this sector. The cooperation may also synergise Indian Prime Minister's Make in India initiative.

Source: Russia & India Report, 12 March 2015.

OPINION – The Economist

The New Nuclear Age

The establishment of nuclear reactors will not only meet the energy requirements of the Indian hinterlands, but also supply energy to its booming sectors of industry. It is likely that by the next year, the work on establishing new nuclear plants will start. By the year 2035 there will likely be 12 more nuclear reactors in India with the Russian support.

Within the next few weeks, after years of stalling and evasion, Iran may at last agree to curb its nuclear programme. In exchange for relief from sanctions it will accept, in principle, that it should allow intrusive inspections and limit how much uranium will cascade through its centrifuges. After 2025 Iran will gradually be allowed to expand its efforts. It insists these are peaceful, but the world is convinced they are designed to produce a nuclear weapon.

In a barnstorming speech to America's Congress on March 3rd, Binyamin Netanyahu, Israel's prime minister, fulminated against the prospect of such a deal. Because it is temporary and leaves much of the Iranian programme intact, he said, it merely "paves Iran's path to the bomb". Determined and malevolent, a nuclear Iran would put the world under the shadow of nuclear war.

Twenty-five years after the Soviet collapse, the world is entering a new nuclear age. Nuclear strategy has become a cockpit of rogue regimes and regional foes jostling with the five original nuclear-weapons powers, whose own dealings are infected by suspicion and rivalry. Thanks in part to Mr Netanyahu's efforts, Iran commands worldwide attention. Unfortunately, the rest of the nuclear-weapons agenda is bedevilled by complacency and neglect.

Mr Netanyahu is wrong about the deal. It is the best on offer and much better than no deal at all, which would lead to stalemate, cheating and, eventually, the dash to the very bomb he fears. But he is right to worry about nuclear war—and not just because of Iran. Twenty-five years after

the Soviet collapse, the world is entering a new nuclear age. Nuclear strategy has become a

cockpit of rogue regimes and regional foes jostling with the five original nuclear-weapons powers, whose own dealings are infected by suspicion and rivalry. Thanks in part to Mr Netanyahu's efforts, Iran commands worldwide attention. Unfortunately, the rest of the nuclear-weapons agenda is bedevilled by complacency and neglect.

The Fallout from Prague: After the end of the cold war the world clutched at the idea that nuclear annihilation was off the table. When Barack Obama, speaking in Prague in 2009, backed the aim to rid the world of nuclear weapons, he was treated not as a peacenik but as a statesman. Today his ambition seems a fantasy. Although the world continues to comfort itself with the thought that mutually assured destruction is unlikely, the risk that somebody somewhere will use a nuclear weapon is growing apace.

Every nuclear power is spending lavishly to upgrade its atomic arsenal. Russia's defence budget has grown by over 50% since 2007, and fully a third of it is devoted to nuclear weapons: twice the share of, say, France. China, long a nuclear minnow, is adding to its stocks and investing heavily in submarines and mobile missile batteries. Pakistan is amassing dozens of battlefield nukes to make up for its inferiority to India in conventional forces. North Korea is thought to be capable of adding a warhead a year to its stock of around ten, and is working on missiles that can strike the west coast of the United States. Even the Nobel peace laureate in the White House has asked Congress for almost \$350 billion to undertake a decade-long programme of modernisation of America's arsenal.

New actors with more versatile weapons have turned nuclear doctrine into guesswork. Even during the cold war, despite all that game theory and brainpower, the Soviet Union and America frequently misread what the other was up to. India and Pakistan, with little experience and less contact, have virtually nothing to guide them in a crisis but mistrust and paranoia. If weapons proliferate in the Middle East, as Iran and then Saudi Arabia and possibly Egypt join Israel in the

ranks of nuclear powers, each will have to manage a bewildering four-dimensional stand-off. Worst of all is the instability. During much of the cold war the two superpowers, anxious to avoid Armageddon, were willing to tolerate the status quo. Today the ground is shifting under everyone's feet.

Some countries want nuclear weapons to prop up a tottering state. Pakistan insists its weapons are safe, but the outside world cannot shake the fear that they may fall into the hands of Islamist terrorists, or even religious zealots within its own armed forces. When history catches up with North Korea's Kim dynasty, as sooner or later it must, nobody knows what will happen to its nukes—whether they might be inherited, sold, eliminated or, in a last futile gesture, detonated.

Others want nuclear weapons not to freeze the *status quo*, but to change it. Russia has started to wield nuclear threats as an offensive weapon in its strategy of intimidation. Its military exercises routinely stage dummy nuclear attacks on such capitals as Warsaw and Stockholm. Mr Putin's speeches contain veiled nuclear threats. Dmitry Kiselev, one of the Kremlin's mouthpieces, has declared with relish that Russian nuclear forces could turn America into "radioactive ash".

Just rhetoric, you may say. But the murder of Boris Nemtsov, an opposition leader, on the Kremlin's doorstep on February 27th was only the latest sign that Mr Putin's Russia is heading into the geopolitical badlands. Resentful, nationalistic and violent, it wants to rewrite the Western norms that underpin the status quo. First in Georgia and now in Ukraine, Russia has shown it will escalate to extremes to assert its hold over its neighbours and convince the West that intervention is pointless. Even if Mr Putin is bluffing about nuclear weapons (and there is no reason to think he is), any nationalist leader who comes after him could be even more dangerous.

Towards Midnight: China poses a more distant threat, but an unignorable one. Although Sino-American relations hardly look like the cold war, China seems destined to challenge the United States for supremacy in large parts of Asia; its

military spending is growing by 10% or more a year. Nuclear expansion is designed to give China a chance to retaliate using a “second strike”, should America attempt to destroy its arsenal. Yet the two barely talk about nuclear contingencies—and a crisis over, say, Taiwan could escalate alarmingly. In addition Japan, seeing China’s conventional military strength, may feel it can no longer rely on America for protection. If so, Japan and South Korea could go for the bomb—creating, with North Korea, another petrifying regional stand-off.

What to do? The most urgent need is to revitalise nuclear diplomacy. One priority is to defend the NPT, which slows the spread of weapons by reassuring countries that their neighbours are not developing nukes. It was essential that Iran stayed in the treaty (unlike North Korea, which left). The danger is that, like Iran, signatories will see enrichment and reprocessing as preparation for a bomb of their own—leading their neighbours to enrich in turn. That calls for a collective effort to discourage enrichment and reprocessing, and for America to shore up its allies’ confidence.

You don’t have to like the other side to get things done. Arms control became a vital part of Soviet-American relations. So it could between China and America, and between America and Putin’s Russia. Foes such as India and Pakistan can foster stability simply by talking. The worst time to get to know your adversary is during a stand-off. In 1960 Albert Wohlstetter, an American nuclear strategist, wrote that, “We must contemplate some extremely unpleasant possibilities, just because we want to avoid them.” So too today, the essential first step in confronting the growing nuclear threat is to stare it full in the face.

Source: *The Economist*, 07 March 2015.

NUCLEAR STRATEGY

PAKISTAN

Pakistan has 10 More Nuclear Weapons than India: Report

Pakistan has 10 more nuclear weapons in its arsenal than India with both the countries doubling their stockpiles since 2007, according to *Bulletin of the Atomic Scientists’* data. The Nuclear Notebook Interactive Infographic provides a visual representation of the *Bulletin’s* famed Nuclear Notebook, which since 1987 has tracked the number and type of the world’s nuclear arsenals.

According to the infographic, neither of the countries possessed any nuclear warhead until 1997. In 1998, when both the Asian countries conducted nuclear tests, India had three atomic weapons while Pakistan had only one. By 1999, they increased their respective tallies to 8. Pakistan surged ahead of India by having 14 weapons as compared to the neighbour’s 13 in 2000.

The figure increased gradually with India trying to match up with it. In 2007, India had 50 nukes while Pakistan had 60. Both the countries have doubled up their stockpile since then, increasing it by 10 weapons every year. In 2013, India had 110 nuclear weapons while Pakistan had 120. According to the bulletin, China has been increasing its stockpile but at a slow pace. Until 2013, it had over 250 weapons.

However, the United States still has the largest nuclear stockpile (4,804), followed by Russia (4,480) and France (300). The global nuclear stockpile in 2013 was over 10,144. United Kingdom has 225 while Israel has around 80 nukes. The global nuclear stockpile was the highest in 1980s, which was also the period of Cold War when the two blocs -headed by the US

Nuclear expansion is designed to give China a chance to retaliate using a “second strike”, should America attempt to destroy its arsenal. Yet the two barely talk about nuclear contingencies—and a crisis over, say, Taiwan could escalate alarmingly.

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and USSR - were competing with each other for supremacy.

There were around 55,255 nuclear heads at that time with USSR and US alone possessing around 30,000 and 24,000 weapons respectively. The figure rose significantly in 1986 and the global figure reached to over 64,000 warheads. The figure, however dropped significantly by the end of the Cold War.

Although the missile would allow Pakistan to target the entirety of the Middle East and Central Asia, the missile's primary target would be Islamabad's archrival: India. With a range of 1,700 miles, the Shaheen-III would allow Pakistan to target any location in India with a nuclear strike.

Source: *The Times of India*, 10 March 2015.

Pakistan Successfully Tested a N-capable Missile that can Hit Any Point in India

Pakistan successfully launched the latest version of an indigenously developed nuclear-capable cruise missile on 09 March. The Shaheen-III missile has a maximum range of up to 1,700 miles, according to members of the Pakistani military. Depending upon the missile's placement, Pakistan would be capable of carrying out a nuclear strike from Israel in the West to Kazakhstan in the north and Burma in the east. ...Although the missile would allow Pakistan to target the entirety of the Middle East and Central Asia, the missile's primary target would be Islamabad's archrival: India. With a range of 1,700 miles, the Shaheen-III would allow Pakistan to target any location in India with a nuclear strike.

Source: <http://www.businessinsider.in>, 10 March 2015.

RUSSIA

Russia Says it has the Right to Deploy Nuclear Weapons in Crimea

Russia has the right to deploy nuclear arms in the Black Sea peninsula of Crimea, which Moscow annexed from Ukraine last year, a Foreign Ministry official said. Mikhail Ulyanovsk, the head of the ministry's department on arms control,

added that he knew of no plans to do so. ...

Meanwhile, NATO Secretary General Jens Stoltenberg said that Russia was still arming and training rebel forces in eastern Ukraine, as he called for the warring parties to help foreign monitors to reinforce a ceasefire. Asked at a news conference about a US diplomat's remark that Russian tanks had crossed into Ukraine in recent days, he declined specific comment on that. ...

Stoltenberg and the top NATO commander, US General Philip Breedlove, said at the alliance's military headquarters in Belgium that their priority now in Ukraine was to see monitors from the Organisation for Security and Co-operation in Europe (OSCE) given the safe and free access and comprehensive information they needed to reinforce the truce.

Near space targets can now be hit by Russian army's mobile tactical air defense S-300 and S-400 systems as a much anticipated long-range missile enters service. It is designed to engage hard targets such as nuclear warheads, rather than satellites. ...The new 40N6 missile guarantees a direct hit on a target at a range of 400 kilometers and at heights of up to 185 kilometers – effectively near space.

Breedlove said NATO could not say if numbers of combatants and weaponry had changed from estimates before the ceasefire because of the difficulties of monitoring movements. It was positive that men and equipment had moved back from frontlines, he said. ...Stoltenberg said he was concerned that weaponry which was not being monitored could be repositioned for future combat.

Source: *The Sunday Morning Herald*, 11 March 2015.

Russian S-300 Missile Systems Capable of Targeting Near Space 'Enter Service'

Near space targets can now be hit by Russian army's mobile tactical air defense S-300 and S-400 systems as a much anticipated long-range missile enters service. It is designed to engage hard targets such as nuclear warheads, rather than satellites. ...The new 40N6 missile guarantees a direct hit on a target at a range of 400 kilometers and at heights of up to 185 kilometers – effectively near space.

This missile's specialization is not soft targets like low Earth orbit (LEO) satellites with easily intercepted predetermined orbits. The 40N6 missile is capable of exo-atmospheric interception of IRBM (intermediate-range ballistic missile) warheads in their terminal phase, leave alone any aircraft target within the missile range perimeter. As for securely intercepting warheads of the ICBMs (intercontinental ballistic missile), this task is going to be delegated to the upcoming S-500 Prometheus airspace defense systems that are scheduled to enter service next year.

Reportedly, the final customizing of the 40N6 missile has been going on since 2008, which is explained with extremely challenging assigned task to guarantee the declared target kill altitude at maximum range. The media reported that the 40N6 missile passed final state quality tests in January 2015. A source in Russia's Defense Ministry told *Tass* news agency that the new missile is going to be supplied "primarily to the Western Command," the regions of Russia bordering NATO member states. According to the source, the new sophisticated weaponry is "already into mass production." It is not known at exactly which facility, however...

Source: <http://rt.com/news/239961-near-space-missile-defense/>, 12 March 2015.

BALLISTIC MISSILE DEFENCE

USA

US Considering Possible Middle East Missile Defence - General

The US military is considering sending its THAAD missile defence system to the Middle East, a senior US Army general said on 04 March, citing what he called an urgent need to respond to foes with

missile systems and the will to use them. General Brooks, head of US Army Pacific Command, said no decisions had been made about deploying a US-owned THAAD battery in the Middle East or South Korea, another region where he saw an urgent need given the threat posed by North Korea.

US military officials have raised concerns in the past about Iran's development of longer-range missiles that could reach Israel and potentially Europe. The US military must weigh its options, given the high cost involved in deploying the THAAD weapon system, built by Lockheed Martin Corp.

...Brooks did not name Iran, but US military officials have raised concerns in the past about Iran's development of longer-range missiles that could reach Israel and potentially Europe. The US military must weigh its options, given the high cost involved in deploying the THAAD weapon system, built by Lockheed Martin Corp (LMT.N), Brooks said. He said the US military also continued to explore options for lower-cost systems to defend against lesser threats, but gave no details. The Army is preparing to swap out a THAAD battery that has

been operating in Guam for about a year. It has four active THAAD batteries, with a fifth to start training this year.

"They have to decide where the need is greatest," said one congressional aide said. "The question is, what does the Central Command commander need to protect

US forces." The commander of US troops stationed in South Korea last June said he had proposed deploying THAAD missiles to South Korea to counter the growing threat of nuclear-armed North Korea's weapons capabilities. Critics say such a deployment could inflame tensions with China and Russia as they see the move as a threat to their security interests.

US Deputy Secretary of State Antony Blinken said in Seoul in February that a THAAD deployment in South Korea was not under active discussion. Lockheed will make initial deliveries of a THAAD system bought by the United Arab Emirates under a \$1.96 billion sale first announced in December 2011, but it will take a year or more until the system is fully operational. Lockheed

hopes to finalise a similar deal with Qatar over the next two years, and Saudi Arabia is also considering a possible purchase. Brooks said the US military remained in dialogue with various Asian countries about how they could take responsibility for self-defence, and how any capabilities could be networked together to help defend allies elsewhere in the region.

Sources familiar with the THAAD system said they did not believe a deployment to the Middle East was imminent. Ellison, founder of the nonprofit Missile Defense Advocacy Alliance, said putting a THAAD system in the Middle East would help cover potential gaps in the existing coverage of the area such as provided by the Aegis system on US destroyers and Patriot missile batteries. Ultimately, he said, a decision to station a THAAD system in the Middle East would be a "political chess move" in the current US talks with Iran over ending its nuclear weapons programme.

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Source: <http://www.firstpost.com>, 05 March 2015.

NUCLEAR ENERGY

BRAZIL

Angra 1, one of Brazil's two nuclear reactors, has begun operating normally again nearly a month after being disconnected due to a cooling system failure, officials said. The plant began generating power again at precisely 11:32 a.m. on Wednesday and has already been reconnected to Brazil's main grid, Eletronuclear, the state-owned company that operates the facility, said.

It was disconnected on Feb. 19 due to a problem with one of the condensers that cools the steam used to activate the plant's power generator. Eletronuclear said at the time that the problem affected equipment that is not in the nuclear area of the plant and did not compromise the safety of the facility, its workers or the people of Angra dos Reis, the nearest city.

Angra 1, which dates to 1985 and has installed generating capacity of 657 MW, is one of two reactors that make up the Almirante Alvaro Alberto Nuclear Complex in southeastern Brazil. The other

one, Angra 2, which has been in commercial operation since 2001, has an installed generating capacity of 1,350 MW. Brazil is currently building a third nuclear reactor at that same complex, Angra 3, which will have 1,405 MW of installed capacity and is scheduled to come online in late 2015.

Source: <http://latino.foxnews.com>, 12 March 2015.

CHINA

China Restarts Nuclear Power Build Up

China approved the construction of two new nuclear reactors, giving a long-awaited go-ahead to Chinese nuclear developers. The country halted its rapid nuclear power expansion in 2011, when Japan's Fukushima Daiichi nuclear power complex experienced meltdowns after a deadly tsunami. While Chinese officials allowed several already approved

nuclear projects to complete their construction after passing safety reviews, they did not approve starting new projects. State-owned China General Nuclear Power Group, formerly known as China Guangdong Nuclear Power Group, gained the first approval.

In a statement released through the Hong Kong stock exchange, China General Nuclear Power Group said that the two newly approved reactors will be at the Hongyanhe nuclear power plant. The company already has two operating reactors as well as two others under construction at the same site, which is about 70 miles north of Dalian, a major coastal city in northern China.

The brief statement gave no details of which companies would supply equipment for the new reactors nor did it give any timetable for the project's construction. But it did note that the preparation work is already underway and the developer is waiting for a final nod from Chinese nuclear safety regulators before starting the construction. Experts say the approval of new nuclear reactors is critical for China to achieve its target of installing 58 gigawatts of nuclear power by 2020. Currently, the country has 22

nuclear reactors in operation, with a total capacity of 20 GW.

Looking for an Alternative to Coal: China has long been hungry for nuclear power, as policymakers here are seeking alternative energy sources to replace dirty coal. Since Chinese President Xi Jinping announced last year that his country will try to peak carbon dioxide emissions by 2030, researchers say, the importance of nuclear power has grown further. According to a report published in November by Tsinghua University in Beijing, without adding nuclear power plants on a large scale, China's carbon emissions peak could be delayed by as long as a decade.

Those words are music to the ears of Chinese nuclear businesses. They have also carried out their own projection. Earlier this month, local media quoted He Yu, chairman of China General Nuclear Power Group, as saying that if the country wants to meet its target of feeding 20 percent of its energy mix with non-fossil fuels, it will need to install at least 150 GW of nuclear reactors by 2030. In addition to lobbying for nuclear power expansion, He suggested that China should start the construction of inland nuclear power plants in the next five years.

So far, all the nuclear power plants in China are located along the coast. Chinese officials and industry players have tried to spread the construction inland but have failed to get local residents on their side. Some scientists are also strongly against the idea, saying that regions in the interior face potential risks such as lacking sufficiently reliable water supplies to cool down nuclear reactors during droughts.

Source: Article by Coco Liu and ClimateWire, Scientific American, 11 March 2015.

SOUTH AFRICA

How will South Africa's New Nuclear Power Stations be Paid For?

The South African government has committed itself, by means of its Nuclear Energy Policy and Integrated Resource Plan, to an energy mix consisting of coal, gas, hydro, nuclear, solar and wind. Yet, if the government is so determined to pursue nuclear power stations, why was no mention of the financing for this included in the minister of finance's budget speech? One would expect that since government wants to use nuclear power to address the shortage of electricity in South Africa, and in the light of high-level delegations which have

signed inter-governmental agreements regarding nuclear power, that this expenditure would have been a focus in the energy portion of this year's budget speech.

This was, however, not the case. Instead, the public was told that the electricity levy will be increased by a whopping 57% from 3.5 to 5.5 c/kWh, and that Eskom would receive additional equity to the tune of R23-billion in three tranches. The public was also told that although the extra 2 c/kWh levy would be removed in time, a carbon tax can be expected soon. The fact that the R23-billion would be in the form of additional equity means that

Eskom will not have repay the money. This additional backing is meant to prop up the power utility's balance sheet which should make it easier for the utility to borrow money on the open market.

Economists have pointed out however, that it will be impossible for Eskom to borrow money to build a fleet of nuclear power stations because of the vast amount of money needed. The capital cost

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of a nuclear power station is extremely high. So who will fund these nuclear power plants? It has been suggested that the country which builds the stations will fund it, so-called vendor funding, and that South Africa would repay the debt over time as it sells the electricity generated by the plants over a lengthy period. But surely that will make electricity very expensive because of the large debt and the interest

incurred. Electricity from nuclear power stations is expensive, despite being cheap to run, as they are very expensive to build. The IEA estimated in 2010 that a PWR type of nuclear power station would cost approximately US\$4800/kW to build.

In 2013, the South African government's estimate was \$6500/kW; and recent reports show that a Hungarian nuclear power station, built by the Russians, cost \$7000/kW, while the French-built nuclear power station at Hinkley Point, UK, cost \$7900/kW. The figures quoted are for the new-build costs alone and do not include operating costs or interest. Despite the high cost of nuclear power stations, and the obvious fact that South Africa cannot afford such an enormous outlay, the departments of energy, public enterprises, and trade and industry all appear to be in favour of this form of generation.

How much electricity does South Africa the country actually need? Eskom's website shows an existing total generation capacity of 42 000 MW excluding the additional power from IPPs. The renewable energy independent power producers (REIPPs) have already added 1500 MW to the grid, and an additional 2500 MW is expected soon. Eskom's Sere Wind farm will provide a further 100 MW, and a new privately owned 2400 MW coal-fired power station is on the cards under a so-called

"coal IPP". Eskom is currently running its open cycle gas turbines (OCGTs) very hard to keep the lights on. These generate 2426 MW and will probably be used less frequently once the additional capacity comes on stream.

In his recent State of the Nation address, President Zuma said that 2600 MW will be supplied from hydroelectric schemes in the SADC countries, and that a further 15 000 MW will be available to the country from the Grand Inga hydroelectric project. He said that 9600 MW from the country's nuclear new-build programme, as approved in the Integrated Resource Plan 2010-2030, would start to come online by 2023, just in time for Eskom to retire part of its aging power plants. This means that South Africa may have more power capacity than it needs at exorbitant cost to the country's economy. Expensive electricity will result in the country's manufacturing sector losing its competitive advantage which will mitigate against growth and job creation.

At the same time the drive towards energy efficiency, which, according to the budget speech will be rewarded by an energy-efficiency savings incentive, set to increase by 111% to 95 c/kWh, will surely motivate people to use less electricity. Perhaps it would be better for the country to continue to drive energy efficiency programmes and to support more IPP projects locally which will create the benefits of more job creation and additional power generation than to rely on foreign governments to build nuclear stations which we cannot afford, or to be reliant on foreign power from the Grand Inga project which is so far away.

Source: <http://mybroadband.co.za>, 08 March 2015.

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URANIUM PRODUCTION

GENERAL

Uranium Prices Climbing Due to Increased Demand for Nuclear Power

Uranium prices have been on the move over the past six months, up 35% to nearly \$40 per pound. That's in stark contrast to the rest of the energy market, which has seen prices sink with crude oil leading the way. There's a supply shortage of just as demand continues to increase, said Adnani, CEO of Uranium Energy Corp (UEC). Uranium has been in a multi-year bear market, but is finally starting to move to the upside. Adani said that there's demand for cleaner fuel and a desire to curb carbon emissions. For example, Japan has received regulatory approval to restart four nuclear reactors this year, with more expected to come on line in the future.

Asia, particularly China, also remains a large nuclear power generator and the expectations are for more reactors on the continent to come on line in the future. Growth in other parts of the world would compensate for countries like Germany, which does not rely as heavily on nuclear energy, he said. Regarding UEC., Adnani said the company is uniquely positioned to take advantage of an increase in uranium demand. It's in an "elite class" among its peers, as it's the only producer in the world that doesn't hedge against price movements, he said. So if uranium prices continue to increase, the company will continue to benefit. The uranium market is in the early innings of what appears to be a long-term turnaround. Uranium Energy Corp. has a low cost structure and is well-positioned for that turnaround, Adnani said.

Source: <http://www.thestreet.com>, 06 March 2015.

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The legislation represents the first step in the lengthy process of transferring oversight responsibility from the US Nuclear Regulatory Commission to the state. It sets aside \$4.2 million to establish a permitting and compliance program.

USA

Wyoming Takes Step toward Regulating Uranium Mining

A bill signed into law by Gov. Matt Mead puts Wyoming on track to become the fourth state charged with regulating its uranium mining industry. The legislation represents the first step in the lengthy process of transferring oversight responsibility from the US Nuclear Regulatory Commission to the state. It sets aside \$4.2 million to establish a permitting and compliance program. State officials and industry representatives said they anticipate it will take four to six years for Wyoming to establish a program and receive NRC approval.

Shortly after signing the bill, Mead sent a letter to the NRC formally announcing the state's intention to seek regulatory authority over the industry. "This legislation is the first step in cutting the bureaucracy in the licensing process and gives the state the power to regulate uranium mining," the governor said in a statement. "It's good for Wyoming and our economy." The bill's passage represents a victory for the state's uranium industry, which has long criticized the federal permitting process as slow and inefficient. Industry representatives said a state-run program would eliminate duplication in the permitting process and expedite approval of new mines. Those moves can be made without sacrificing the integrity of the government's review process, they argued.

...What a Wyoming uranium program would look like remains to be seen. The funding set aside by the Legislature would help hire a program director and support staff to create an oversight program. Environmentalists and industry critics said the

program's effectiveness will depend on the way the state writes the rules. Federal enforcement is already lagging, with regulators slow to respond to potential violations.... Uranium backers sought to allay concerns over state oversight of the industry. They noted a Wyoming program would have to be at least as stringent as its federal equivalent before the NRC granted the state oversight authority.

...The sector has encountered environmental problems in the past. A 2008 state investigation found repeated spills at Cameco's Smith Ranch-Highland complex in Converse County. It also criticized the company for lengthy delays in its groundwater restoration efforts and insufficient bonding to cover the company's reclamation costs. The company ultimately paid a \$1.4 million fine, doubled the size of its bonds and agreed to an accelerated reclamation program. Wyoming accounted for two-thirds of the US' uranium production in 2014, according to preliminary federal and state figures, producing around 3.3 million tons of the 4.9 million tons mined nationally. The Cowboy State would follow Colorado, Texas and Utah as the fourth state granted oversight of its uranium industry.

Source: <http://trib.com>, 04 March 2015.

NUCLEAR COOPERATION

SAUDI ARABIA-SOUTH KOREA

Saudi Arabia Signs Nuclear Deal with South Korea

Saudi Arabia has reportedly signed a nuclear-cooperation agreement with South Korea, a move that has heightened fears of a nuclear arms race in the Middle East amid discussions over Iran's program. The agreement is being viewed by some in the US and among its allies as retaliation for an agreement between world powers and Tehran

that may allow the later to maintain part of its nuclear program, the *Wall Street Journal* reported.

Saudi Arabia's former intelligence chief, Prince

Turki Al Faisal, has publicly warned in recent months that Riyadh would match whatever the nuclear capabilities Iran is allowed to maintain as part of any final agreement, presently being negotiated. This could include the ability to enrich uranium and to harvest the weapons-grade plutonium discharged in a nuclear reactor's spent fuel, *WSJ* said.

... The official Saudi Press Agency said the memorandum

of understanding between Saudi Arabia and South Korea included a plan to study the feasibility of building two nuclear reactors worth \$2 billion over the next 20 years.

Source: <http://www.arabianbusiness.com>, 12 March 2015.

SOUTH KOREA-QATAR

Korea Extends Nuclear Cooperation to Qatar

During a meeting between South Korean president Park Guen-hye and Qatari Emir Sheikh Tamim bin Hamad Al Thani in Doha, an MOU was signed by Qatar's Ministry of Energy and Industry and Korea's Ministry of Science, ICT and Future Planning. The agreement calls for cooperation on human resources development and research on peaceful uses of nuclear energy.

Following the signing of the MOU, Park said in a statement she hoped "that substantive cooperation in the area would be broadened". Tamim also said he looked forward to the expansion of cooperation on the basis of the MOU and expressed his interest in "importing reactors for research purposes to nurture experts in his country". ... Under the agreement, the two countries will conduct a three-year preliminary study to review the feasibility of constructing

SMART reactors in Saudi Arabia. The cost of building the first SMART unit in Saudi Arabia is estimated at \$1 billion, the agreement states. ...

Source: *World Nuclear News*, 09 March 2015.

NUCLEAR PROLIFERATION

MIDDLE EAST

US-Iran Talks will 'Pave the Way' for Nuclear Arms Race in Middle East

In a biting attack on the US's nuclear talks with Iran, Israeli PM Netanyahu predicted on 03 March not only will they fail to stop Iran from obtaining nuclear weapons, they will also "pave the way" for a nuclear arms race in the Middle East. In a highly contentious speech to the US Congress, Mr. Netanyahu even claimed the framework "deal" now on the table would put the world on the path towards a nuclear holocaust.

...His 40-minute speech, which was greeted with numerous standing ovations, essentially painted US President Obama as a naive leader who has been charmed by Iran. At one point, Mr. Netanyahu claimed Mr. Obama was

betting the future of the world on a "bad deal." ... "This deal won't be a farewell to arms, it would be a farewell to arms control and the Middle East would soon be crisscrossed by nuclear trip wires. A region where small skirmishes can trigger big wars would turn into a nuclear tinderbox." ... "I can promise you one more thing even if Israel has to stand alone, Israel will stand. But I know that Israel does not stand alone. I know that America stands with Israel. I know that you stand with Israel."

Response to the speech tracked party lines in what has been labeled a highly partisan affair. Steve Scalise, the Republican majority leader in the House of Representative, called it "incredibly powerful." He said it outlined "very specific problems" with the framework deal being

negotiated by the five permanent members of the UN Security Council, plus Germany. Other lawmakers said the speech ends any hope of repairing the broken relationship between Mr. Obama and Mr. Netanyahu.

...The White House quickly responded with a statement accusing Mr. Netanyahu of misrepresenting the facts of the negotiations. Mr. Obama even took time out from a meeting with Defence Secretary Ashton Carter to tell reporters the speech was "theatre." "PM Netanyahu has not provided any kind of viable alternative that would achieve the same verifiable mechanism to prevent Iran from getting a nuclear weapon," he said. "When we shaped that interim deal [in 2012], PM Netanyahu made almost that precise same speech about how dangerous that deal was going to be, and yet over a year later even Israeli

intelligence officers and in some cases member of the Israeli government have to acknowledge that, in fact, it has kept Iran from pursuing its nuclear program.

"The bottom line is this, we don't yet have a deal. But if we are successful negotiating, then ... this will

be the best deal possible for preventing Iran from obtaining a nuclear weapon. Nothing else comes close. Sanctions won't do it. Even military action would not be as successful as the deal that we have put forward." Needless to say, Mr. Netanyahu disagreed. But his criticism was sometimes contradictory and misleading. For example, he claimed the current framework would leave Iran's "vast nuclear structure" in place. In fact, the deal calls for destruction of an underground reactor and disabling thousands of centrifuges. It will also impose severe limitations on uranium enrichment. The speech comes against the backdrop of the Israeli election campaign, in which Mr. Netanyahu is fighting for his political life. ...

Source: <http://news.nationalpost.com>, 03 March 2015.

This deal won't be a farewell to arms, it would be a farewell to arms control and the Middle East would soon be crisscrossed by nuclear trip wires. A region where small skirmishes can trigger big wars would turn into a nuclear tinderbox.

SAUDI ARABIA

'Nobody is Going to Wait': Saudi Drafting Nuclear Back-up Plan to Counter Iran?

Saudi Arabia, growing increasingly nervous about its neighbor across the Persian Gulf, may be hedging its bets and crafting a nuclear back-up plan if a diplomatic deal with Iran fails to halt the Islamic Republic's alleged march toward a weapon. The latest sign is a curious visit on 04 March by Pakistan PM Sharif, the day before Secretary of State John Kerry's visit to the capital Riyadh. Sharif arrived in Saudi Arabia following a visit by the Egyptian president and Turkey's president on 02 March but the Pakistan PM's House of Saud call might be the most significant of the three, considering Pakistan is seen by some analysts as Saudi Arabia's future nuclear tech supplier, should the Kingdom take that leap.

"The visit by the PM...almost certainly has to be seen in the context of Saudi Arabia looking to Pakistan for nuclear cooperation to counter Iran's emerging status," Simon Henderson, of the Washington Institute.... Henderson, in an essay for the Washington Institute in February, also noted Riyadh's support for Pakistan's nuclear program, "providing financing in return for a widely assumed understanding that, if needed, Islamabad will transfer technology or even warheads." The developments point to increasing tension in the region over the course of US-driven nuclear talks. Earlier, Israeli PM Netanyahu gave an address to Congress urging the Obama administration to pull back on the talks, warning the pending deal is too soft on Iran.

"When the Israelis and Arabs are on the same page, people should pay attention," Israel's

ambassador to the US Ron Dermer told Fox News on 05 March. "That doesn't happen too often." President Obama and his top advisers have urged allies, and lawmakers, to be patient and wait until a deal is actually presented before judging it. But some in the region are getting impatient. ...The State Department did not return a request for comment from Fox News on whether

Saudi Arabia, growing increasingly nervous about its neighbor across the Persian Gulf, may be hedging its bets and crafting a nuclear back-up plan if a diplomatic deal with Iran fails to halt the Islamic Republic's alleged march toward a weapon.

it was concerned about Saudi Arabia seeking a nuclear weapon.

Henderson, in his essay, pointed out that Saudi Arabia and Pakistan may have just renewed a secret nuclear weapons pact. In early February, the chairman of Pakistan's Joint Chiefs of Staff Committee visited Saudi Arabia, amid some speculation that the House of Saud had indeed reconfirmed a supposed arrangement with Pakistan for the nation to supply Saudi Arabia with warheads should Iran go nuclear. The visit to Saudi Arabia in February came a day after a successful test-firing of Pakistan's Raad air-launched 220-mile-range cruise missile, which supposedly is able to deliver nuclear and conventional warheads.

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Ironically, the father of Pakistan's nuclear program, Qadeer "AQ" Khan, also provided the technology to Saudi Arabia's nemesis, Iran.

Kerry is navigating complicated Arab world geopolitics as he meets with foreign counterparts. Amid wariness over Shiite Iran's nuclear program, these countries are also concerned about Iran's support for Shia militants against ISIS militants in Iraq, support for Houthi rebels in Yemen and the country's ever-growing regional footprint. In Riyadh, Kerry met on 05 March with counterparts from the Kuwait, UAE, Qatar, Bahrain and Oman – all Sunni nations concerned about Iran's intentions in Iraq, Syria and Yemen.

At a press conference on 05 March, Saudi Arabia's

FM Prince Saud al-Faisal expressed concern over Iran's involvement in helping Iraqi forces in Tikrit. "The situation in Tikrit is a prime example of what we are worried about. Iran is taking over the country," he said. The Pentagon acknowledged Iran's leading role in the battle for Tikrit. Two-thirds of those taking part in the operation are Iran-backed Shia militias led by Quds Force commander Gen. Major General Qasem Soleimani, the special operations wing of Iran's Revolutionary Guard. "This is the most overt conduct of Iranian support in the form of artillery and other things," Gen. Dempsey, chairman of the Joint Chiefs of Staff, told members of Congress on 03 March. Kerry did his best to reassure Saudi Arabia and other Gulf allies that the United States will not ignore Iran's actions in the region outside of the ongoing nuclear talks. ...

Source: <http://www.foxnews.com>, 07 March 2015.

NUCLEAR NON-PROLIFERATION

IRAN

'Tough Challenges in Iran Nuke Talks'

The US said tough challenges remained to seal a nuclear deal with Iran, vowing not to be distracted by external politics in its quest to stop Tehran acquiring the atomic bomb. Secretary of State Kerry and his Iranian counterpart Zarif wrapped up three days of "intense" nuclear negotiations in the Swiss lakeside town of Montreux with still no deal, as a March 31 deadline for a framework agreement looms. "We've made some progress from where we were and important choices need to be made," Kerry told reporters after the talks, with a senior State Department official adding that "tough challenges" had yet to be resolved.

Zarif sounded more optimistic, telling Iranian news agency ISNA that "despite existing differences, a final deal is not too far off." But he warned that the thorny issue of sanctions, which Iran wants

lifted, risked torpedoing the deal. "The Western countries, and especially the US, must decide whether they want a nuclear deal or to continue the sanctions," he said. Speaking a day after Israeli PM Netanyahu stridently criticised an agreement

he said would not stop Iran from getting a nuclear bomb, Kerry stressed that the purpose of negotiations was to "get the right deal, one that can withstand scrutiny".

Netanyahu warned in his dramatic speech to the US Congress on 03 March that an agreement that was "supposed to prevent nuclear

proliferation would instead spark a nuclear arms race in the most dangerous part of the planet." Kerry said that "any deal we reach would give us the intrusive access and verification measures necessary to confirm that Iran's nuclear facilities are indeed on a peaceful path. "That would allow us to promptly detect any attempt to cheat or break out and then to respond appropriately."

He cautioned that the so-called P5+1 countries negotiating with Iran would not "be distracted by external factors or politics". Zarif meanwhile told Iranian state television the sides had made progress on the issue of its Fordo nuclear plant, but still had a way to go on Arak. The world powers negotiating with Iran want to block the country from enriching uranium at Fordo, and from developing weapons-grade plutonium at its unfinished Arak reactor...despite the political drama around Netanyahu's speech, US President Obama shrugged off the address, saying it was nothing new. Iranian President Rouhani, meanwhile, responded that Israel creates the "greatest danger" in the region. The Iranian FM denounced what it called Netanyahu's "continuous lie-spreading about the goals and intentions behind Iran's peaceful nuclear programme".

Source: <http://manilastandardtoday.com>, 05 March 2015.

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ISREAL

Israel Must Join NPT, its Nuclear Facilities Inspected - Arab Group

Israel must be made to join the NPT and its nuclear facilities must be subjected to international inspection, said the Arab Group in Vienna on 05 March. In a speech at the meeting of IAEA board of trustees, the Group's representative and Egyptian ambassador to Austria Shamaa noted that Israel's repeated spurning of NPT and rejection of the notion of ever joining it is a source of anxiety in the Middle East region and a threat to its security and peace. He said Israel is disingenuous when it claims that a Mideast peace agreement must precede the decision to have the region become officially one that is free from nuclear weapons.

He explained that "what worries us about Israel's possession of nuclear weapons is that its leadership has shown the propensity to use power disproportionately and recklessly in the face of defenseless civilians as we have often seen it do against the Palestinians." He expressed the Arab Group's disappointment with some member countries of the IAEA who seem to look the other way when it comes to holding Israel accountable for its intransigence at joining the NPT. He urged the board of trustees to keep and not abandon the subject of Israel's nuclear capability on its regular agendas.

Source: <http://www.kuna.net.kw>, 05 March 2015.

NUCLEAR DISARMAMENT

INDIA

India can Lead Global Nuclear Disarmament Initiative: Activist Alyn Ware

Pitching for a nuclear weapon-free world, activist Alyn Ware on 09 March said India can lead the initiative in this regard by "building bridges" between nuclear-armed states and non-nuclear states. Ware, who is in India to meet parliamentarians such as CPI MP CN Jayadevan and Congress leader Aiyar, social campaigners and academics, said such a move could help break

the "deadlock" that has "prevented multi-lateral negotiations for nuclear disarmament for the past 20 years". He said issues like "international disarmament initiatives, humanitarian impact of nuclear weapons and the opening of Indo-US relations" were likely to come up in his talks with them. "Globally around 100 billion dollars goes into weapons, most of that money is for technology and very high tech materials....

Source: <http://economictimes.indiatimes.com>, 09 March 2015.

MIDDLE EAST

Russia Calls for Launching Talks on Creating Nuclear-Free Zone in Middle East

The diplomat noted the importance of launching negotiations on creation of a nuclear weapon free zone in the Middle East (MENWFZ). "There is serious concern about uncertainty on holding a conference on creating a zone free of nuclear and other weapons of mass destruction and delivery of such weapons in the Middle East," Lavrov said. "It seemed like efforts made by many countries, including Russia, gave hope for finding a comprehensive 'package' of the agenda and format of such forum," the minister added.

However, "the conference failed to gather in the set timeframe," he noted. "Nevertheless, the issue of launching negotiations on creating MENWFZ remains a priority on the international agenda, and we think it is important to continue dialogue with the participation of all countries in the region in the interests of holding the conference as soon as possible," the minister said. "Russia is also ready to sign a protocol to the Bangkok treaty on the Nuclear-Weapon-Free-Zone in Southeast Asia," he said.

Source: <http://in.rbth.com>, 02 March 2015.

USA

US Says Ready to Negotiate Further Reductions in its Nuclear Weapons Stockpile

US Secretary of State Kerry has said that the US is prepared to negotiate further reductions in its nuclear weapons stockpile. In a statement issued

on the 45th Anniversary of the NPT, Kerry said the US is fully committed to continuing to fulfill its own Treaty obligations, as well as to strengthening the global nuclear nonproliferation regime. "Under the New START Treaty, we are reducing our deployed nuclear weapons to levels not seen since the 1950s, and we are prepared to negotiate further reductions," he added. Through bilateral agreements and through the IAEA, we also continue to advance peaceful nuclear cooperation with other NPT Parties, Kerry said.

Kerry reminded that NPT Parties share a responsibility to reinforce the global nuclear non-proliferation regime, in particular to overcome the challenges posed by a few countries that have violated their international non-proliferation obligations. This should be a concern of all states, as it is the future integrity of the non-proliferation regime that is at stake. He warned that "Our common security would be profoundly affected if additional countries crossed the nuclear threshold," referring to Iran and North Korea. The Ninth Review Conference of the NPT will open in New York on April 27. The US has been working diligently to implement the items in the Action Plan adopted at the 2010 Review Conference, and we seek to strengthen that Plan. Kerry said the US Government looks forward to working with all NPT Parties to achieve a constructive outcome of the conference.

Source: <http://www.rttnews.com>, 06 March 2015.

NUCLEAR SAFETY

GENERAL

UN Agency Head Urges Cooperation on Safeguards, Stresses Role of Nuclear Energy in

NPT Parties share a responsibility to reinforce the global nuclear non-proliferation regime, in particular to overcome the challenges posed by a few countries that have violated their international non-proliferation obligations. This should be a concern of all states, as it is the future integrity of the non-proliferation regime that is at stake.

Iran was still to propose new practical measures. With increased cooperation by Iran, the Agency could help to accelerate resolution of all outstanding issues under the Framework.

Development

In his introductory statement to the Agency's Board of Governors, the head of the UN atomic energy watchdog said he remains "seriously concerned" about nuclear programme of the DPRK, and that he is not yet in a position to conclude that all nuclear material in Iran is

used for peaceful purposes. The IAEA Director General Amano said the Vienna-based body remains ready to play an essential role in verifying the DPRK's nuclear programme, despite DPRK's unwillingness to allow verification teams into the country. ...

Verification of the non-diversion of nuclear material by Iran continued under the Safeguards Agreement was continuing, Mr. Amano said, monitoring and verification in relation to the nuclear-related measures set out in the Joint Plan of Action agreed between Iran and the so called "E3+3" countries. "The Agency is not in a position to provide credible assurance about the absence of undeclared nuclear material and activities in

Iran," he said adding that that meant it was therefore impossible to conclude that all nuclear material was being used peacefully. The Agency was unable to clarify two outstanding practical measures that were agreed

2014 under the Framework for Cooperation, while Iran was still to propose new practical measures. With increased cooperation by Iran, the Agency could help to accelerate resolution of all outstanding issues under the Framework, and he called for timely provision of access to all information, documentation, sites, material and personnel requested by the Agency.

...Pointing to positive recent meetings with Iran's FM, Zarif, and his Deputy Araghchi, Mr. Amano

reported that he had no new developments to report on implementation of safeguards in Syria and he renewed his call on Syria to cooperate fully in connection with unresolved issues related to the Dair Alzour site and other locations. While stressing the importance of nuclear safeguards, Mr. Amano also underlined the importance of the Agency's work to make nuclear technologies available for development.

"I feel that our mandate could be understood today not just as 'Atoms for Peace,' but as Atoms for Peace and Development," he said, emphasising the importance of modern science and technology, including nuclear technology, for development, and calling for its appropriate recognition in the post-2015 development agenda. He also drew attention to progress in implementation of the IAEA Action Plan on Nuclear Safety, including adoption of the Vienna Declaration on Nuclear Safety including principles for the implementation of the Convention to prevent accidents with radiological consequences and to mitigate such consequences should they occur. Noting that the Agency was moving into a "critical period" as far as extra-budgetary contributions for the ReNuAL project to modernise the nuclear applications laboratories at Seibersdorf are concerned, he said it was "worrying" that no concrete commitments of contributions towards the cost of construction of the buildings have been received so far, although some Member States have indicated strong interest.

Source: <http://www.un.org>, 02 March 2015.

JAPAN

Japan's Contaminated Fukushima Debate Four Years On

On 24 February 2015, the TEPCO issued a press release saying that the source of high radiation levels in one of its drains came from a puddle of

rainwater that had accumulated on the rooftop of Unit 2 at the Fukushima Daiichi Nuclear Power Station. The drain leads to open seawater. It was thus suspected that contaminated water may have leaked into the sea, although TEPCO found 'no increase in radioactivity' in the seawater in the area. This is just one episode in a series of many adverse events in Japan's nuclear industry that have been reported in the past four years. But this particular incident was worse than usual because TEPCO was aware of the high level of radioactivity in the drain but failed to notify either the Nuclear Regulation Authority or the local government.

It was also very bad timing. After long negotiations with the local fishing industry, TEPCO was about to release some of the accumulated radioactive groundwater, which had been cleaned through a water treatment process, into the Pacific. On 25 February, the local fishing industry association heavily criticised TEPCO. Sato, the chairman of the Soma-Futaba Fisheries

Cooperative Association, said that 'trust has been lost'.

This lack of trust is the fundamental problem that underlies the challenges facing Japan's nuclear industry since the Fukushima disaster in 2011. The public has lost faith in nuclear safety regulation. Faith has not been fully restored even after a new independent Nuclear Regulatory Authority was established in 2012 and new, much tougher regulatory standards were introduced. According to polling conducted by Hirotada Hirose of Tokyo Women's Christian University...suggested that about 80 per cent of the public still believed that serious nuclear accidents will happen again in Japan.

In the latest polling undertaken by *Nikkei Shimbun* in August 2014, the share of the public who oppose the restarting of existing reactors rose to 56 per cent, an increase of 4 percentage points

Lack of trust is the fundamental problem that underlies the challenges facing Japan's nuclear industry since the Fukushima disaster in 2011. The public has lost faith in nuclear safety regulation.

from previous polling on this question. The same polling indicated that 61 per cent of the public were willing to accept higher electricity prices if existing nuclear power plants remained closed. Hirose's polling also suggested that government agencies were considered to be the 'most untrustworthy' organisations of those that were listed. This loss of trust is the most serious challenge that nuclear policymakers and the nuclear industry now face in Japan. Even four years after the accident, it has not been addressed adequately.

What can Japan do to restore this trust? The best strategy is, of course, honesty. Transparency in policymaking is essential. The public needs to be involved in decision making. Japanese public discourse also urgently needs an independent and unbiased organisation that can provide the public with trustworthy information. Such an organisation could also check and validate data, and the practices of government and industry.

The current Japanese policy debate is completely polarised between advocates for and opponents against nuclear energy. An independent organisation is required to help adjudicate between the two sides, and it needs to be one that the public can trust.

The current Japanese policy debate is completely polarised between advocates for and opponents against nuclear energy. An independent organisation is required to help adjudicate between the two sides, and it needs to be one that the public can trust. It should be established soon. Meanwhile getting independent and unbiased expert information to the public on the subject of nuclear power is a challenging priority.

Source: <http://www.eastasiaforum.org>, 08 March 2015.

PAKISTAN

IAEA Completes Safety Review of Nuclear Reactors Destined for Pakistan

The IAEA has completed the key Generic Reactor Safety Review (GRSR) of ACP-1000 nuclear reactors, which Pakistan is installing in Karachi

to deal with a dilapidating energy crisis. The IAEA confirmed to *The Express Tribune* via email that GRSR of reactors indigenously designed by China National Nuclear Corporation (CNNC) was completed in late January.

Earlier, some industrial publications reported GRSR's completion based on CNNC's announcement but this is the first time IAEA has officially acknowledged it. However, the IAEA clarified the review only gauges safety aspect of the reactor design and does not constitute as any kind of certification or approval. "This type of review gathers international experts to conduct an early evaluation of the safety case of new designs that are not yet licensed using IAEA Safety Requirements," said Susanna LÖÖF, IAEA's press and publication officer. "The review is not a clearance process but a review of quality of safety documents identifying strengths, weaknesses and gaps," Susanna added.

The ACP-1000 is a third-generation pressurised water reactor (PWR) capable of generating 1,100 megawatts of electricity. "Such evaluations provide an opportunity to improve safety case based on international standards and experience but do not constitute any kind of design certification or licensing activity as this is responsibility of member state." Nevertheless, CNNC has already declared GRSR as a victory with one its senior officials telling *China Daily* in December that the company can now easily sell reactors outside of China. Energy-starved Pakistan has been pushing for two of these reactors to be built in the port-city of Karachi near an existing nuclear power plant despite opposition from civil activists and bad press in the United States.

A senior official of the PAEC said GRSR's completion means IAEA experts are satisfied with reactor's design with it comes to safety. "But every

country has its own standards and regulations as well. Now it is up to us to decide where we install it," he said. Some individuals have been raising concern about the design of ACP-1000, suggesting that particular reactors have never been tried before. But PAEC experts have rubbished the criticism as the China itself is going to use same reactors. The new designs are basically more efficient and more advanced in terms of safety while basic technology remains the same, they say.

Source: <http://tribune.com.pk>, 10 March 2015.

Fear Grows over New Nuclear Reactors in Karachi

A real nightmare could be unfolding in Karachi as Pakistan will be supplied with two large nuclear reactors from China to aid the country in its energy crisis, *The Washington Post* reported. There has always been fear among world leaders that terrorists may try to steal one of Pakistan's nuclear bombs and detonate it in a foreign country, however, some have said that the real nightmare could be unfolding in Karachi after the reactors are supplied. The new power plants which comprise a new design are not yet in use anywhere in the world and will be each supplying 1,100 megawatts to Pakistan's national energy grid. The reactors are being built next to a much smaller 1970s-era reactor located on a popular beach where fishermen still make wooden boats by hand.

The new ACP-1000 reactors will stand less than 20 miles from Karachi's densely populated metropolis of 20 million residents. Many have come forward in argument against the government's nuclear ambitions, questioning

whether this was the best place to build the nuclear reactor.... Recommendations put forward by the US Nuclear Regulatory Commission pertaining to nuclear power plant construction state that any new reactor should be situated away from a very densely populated area, preferably with fewer than 500 people per square mile within a 20 mile radius.

The same zone where the power plants would be constructed holds about 6,450 people per square mile a Pakistani nuclear physicist wrote in *Newsweek Pakistan* last year. Concerns have been expressed by some US diplomatic officials about China's role in providing nuclear energy to Pakistan. Pakistan still remains to be one of the few developing nations which is still pursuing civilian nuclear energy options since the Fukushima disaster in Japan in 2011. With three operative nuclear power plants, Pakistan has turned to China for help in expanding the capacity of these plants. Efforts are underway to double the size of the Chashma Nuclear Power Plant in Punjab, as well as to build the new Karachi reactors.... The ACP-1000 reactor was developed by China and cost about \$5 billion each to build. The design of the reactor is based on one that France built in China in the 1980s.

Despite Pakistan's refusal to sign the NPT and the international ban on the transfer of nuclear technology to Pakistan, the China National Nuclear Corporation will still be supplying the ACP-1000 reactor to Pakistan. "We are going to be the guinea pigs," said Belgaumi, a Karachi architect who wants the international community to pay closer attention to the government's plans. "China's expanding civilian nuclear cooperation

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with Pakistan raises concerns and we urge China to be transparent regarding this cooperation," the US Embassy said in a statement on 05 March. Of particular concern with supplying Pakistan with the reactors is the threat of terrorism with Karachi's long history of security lapses. If a major attack or accident were to occur at a nuclear power plant, activists said there would be unimaginable chaos.

Source: <http://www.pakistantoday.com.pk>, 06 March 2015.

SOUTH KOREA

Restarting Wolseong 1

South Korea's second-oldest nuclear power reactor in Gyeongju, which has been dormant for the last three years after finishing its intended lifespan of 30 years, received a license to renew operations after a refurbishment and upgrade. The Nuclear Safety and Security Commission reached a decision to extend the life of the Wolseong 1 reactor to 2022. It was the second issue of new lease on life for an outdated nuclear reactor after the Gori 1, whose 30-year life expired in 2007, was turned back on for another 10 years. The latest decision was based on evaluations by experts including the state-owned Korea Institute of Nuclear Safety. The reactor passed stress and other safety tests to see if it could resist disasters by a group of experts and the IAEA.

Regardless of the test results, authorities must be thorough with their scrutiny of the plant before it reactivates its aging nuclear reactor. ...Safety has become the key word in our society since the

tragic sinking of the Sewol ferry 2014. The new license for Wolseong 1 was approved after three rounds of reviews and multiple evaluations. The government should reinvestigate issues raised during the final round of reviews and prepare a strong pitch to persuade the residents of the area of the rightness of the decision. Safety concerns and suspicions linger because of a series of corruption scandals by the nuclear power authority and related industries.

Nuclear power is a primary energy source for the country. It provides 27 percent of the

country's power generation. The Wolseong 1 reactor had the capacity of generating 5 billion kilowatt-hours a year as of 2008 and is capable of providing 80 percent of the power to homes in Daegu and North Gyeongsang Province. The cheap and good-quality power from nuclear generators has been an important pillar of the Korean

economy. There are few other affordable alternatives for energy for countries deprived of natural resources. Developments in renewable energy have been costly and slow and fossil fuel-based power generation goes against international efforts to fight global warming. But nuclear power cannot be sustained without assurances of its safety and public confidence. The

opposition is poised to use the decision on restarting the plant to attack the government. But the matter should be studied for the benefit of the whole country.

Source: <http://koreajoongangdaily.joins.com>, 02 March 2015.

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UK

Britain's Nuclear Weapons Base Suffers from 'Serious' Nuclear Safety Incidents

Britain's nuclear weapons base has suffered from a dozen serious nuclear safety failures in recent years, according to official records. Over the last six years HM Naval Base Clyde, where Britain's Trident nuclear submarine fleet is based, suffered from nearly 400 "widespread" nuclear safety events relating to a "poor safety culture". In 12 of these cases the problems involved an "actual or high" risk of unplanned exposure to radiation or contained release of radiation within a building or submarine, according to information released by ministers. In 2014, the number of nuclear safety events involving nuclear propulsion nearly doubled, from 57 in 2013 to 99 in 2014.

In one incident in 2012, contractors working on the base were exposed to radiation while repairing submarine equipment. The 12 most serious events at the

base, classified by the MoD as "Category B", are ones in which there is an "actual or high potential for a contained release [of radiation] within building or submarine or unplanned exposure to radiation". According to the Ministry's own criteria, this classification is used for safety events that involve a "major failure in administrative controls or regulatory compliance". Other serious nuclear safety events included the unsafe operation of a crane on a jetty handling explosives, faulty radiation testing, and low-level radioactive contamination around a pipe that dumps supposedly decontaminated waste into the sea.

Despite the problems, the base has not recently suffered from any of the most serious category of safety failures – 'Category A' – which would have involved release into the environment in the surrounding area. The information was disclosed by ministers after a parliamentary question by SNP MP Robertson – who leads the party's parliamentary group in Westminster...

Source: <http://www.independent.co.uk>, 02 March 2015.

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NUCLEAR WASTE MANAGEMENT

TAIWAN

Questions Raised Over Nuclear Waste Management

The Atomic Energy Council (AEC) has detected greater-than-class-C (GTCC) nuclear waste at the nuclear-waste storage facility on Orchid Island (Lanyu) in Taitung County, despite the facility being designed for only low-radioactive materials, raising questions over the management of nuclear waste. The council originally ordered Taiwan Power Co (Taipower) to introduce new rules on nuclear-waste classification by the end of 2014, after it discovered the GTCC nuclear waste on the outlying island. However, Taipower has failed to meet the deadline due to technical difficulties in compiling a nuclear-waste inventory, so the deadline has been extended, the council said.

According to the US Nuclear Regulatory Commission classification system, nuclear waste with a concentration of cesium-137 or strontium-90 greater than 4,600 and 7,000 curies per cubic meter respectively, or with a concentration of nickel-63 greater than 700 curies per cubic meter, is considered GTCC waste.

Citing a report by the Institute of Energy Research, Mu-huo, adviser to Democratic Progressive Party (DPP) Legislator Ou-po, said GTCC waste is mainly made up of components of decommissioned nuclear reactors and resins derived during the maintenance of nuclear power plants. Class B nuclear waste is required to be stored in containers for 300 years, while class C waste needs to be stored for 500 years. GTCC waste is generally unacceptable for near-ground storage and requires a special disposal plan, the report shows. Yang questioned why storage canisters designed for storage of up to 100 years had been used for the waste on Orchid Island and why authorities did not propose a special disposal plan

for the GTCC materials, which he said might have contributed to Taipower's delay.

In response, AEC Fuel Cycle and Materials Administration Director-General Yau-tsu said GTCC waste is derived from units inside nuclear reactor cores that react with photons and exists at all three operational nuclear power plants in the nation, as well as the disposal site on Orchid Island. He said that GTCC materials amount to less than 1 percent of the nation's overall low-level nuclear waste and that its

GTCC waste is derived from units inside nuclear reactor cores that react with photons and exists at all three operational nuclear power plants in the nation, as well as the disposal site on Orchid Island. GTCC materials amount to less than 1 percent of the nation's overall low-level nuclear waste and that its radioactive level should not be an issue of concern.

radioactive level should not be an issue of concern. He said that the problem of GTCC disposal would come to the fore when the nation's deep geological repository comes into use, as the nuclear waste on Orchid Island is being stored temporarily, and that the council ordered Taipower to propose a new classification system as a pre-

emptive move for the final storage of nuclear waste.

Source: <http://www.taipeitimes.com>, 09 March 2015.



Centre for Air Power Studies

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

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