



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



Vol 10, No. 17, 01 JULY 2016

OPINION – Shyam Saran

NSG Membership: The Writing on the Great Wall

The NSG meeting in Seoul ended with no decision on India's application to join the group as a full member. This outcome was widely expected ever since China took a public stand against a non-signatory to the NPT being granted membership, since it felt this would undermine the international non-proliferation regime. It elaborated this position further by suggesting that the NSG thoroughly discuss the subject of membership of non-NPT states so that a set of objective criteria could be agreed upon and that no application was treated as an exceptional case.

Having taken this stance, China tried to prevent any formal discussion on India's application for membership, saying that the issue of agreed criteria for admitting non-NPT members had to be discussed and agreed upon first. When Chinese objections were overcome and a discussion on India's application was held eventually, this did not materially change the situation since China and a few other members continued to oppose a decision on the same procedural grounds.

The NSG outcome document is in line with Chinese insistence that what should remain on

The only practical possibility would be for India and Pakistan to be admitted together, which China has indicated it would be willing to support. The problem is that most NSG members will have to hold their noses to swallow and digest the Pakistani application, even if India has no objection. China has ensured that India and Pakistan are now joined at the hip as far as entry into the NSG is concerned.

the agenda is the basis on which non-NPT countries could be considered for membership without undermining the NPT as a cornerstone of the international non-proliferation regime. Therefore, India's entry into the NSG as a unique and exceptional case may be extremely difficult even if a determined lobbying effort is launched in the coming weeks and months. The

only practical possibility would be for India and Pakistan to be admitted together, which China has indicated it would be willing to support. The problem is that most NSG members will have to hold their noses to swallow and digest the

CONTENTS

- ☞ OPINION
- ☞ NUCLEAR STRATEGY
- ☞ BALLISTIC MISSILE DEFENCE
- ☞ NUCLEAR ENERGY
- ☞ NUCLEAR COOPERATION
- ☞ URANIUM PRODUCTION
- ☞ NUCLEAR PROLIFERATION
- ☞ NUCLEAR NON-PROLIFERATION
- ☞ NUCLEAR DISARMAMENT
- ☞ NUCLEAR SAFETY
- ☞ NUCLEAR WASTE MANAGEMENT

Pakistani application, even if India has no objection. China has ensured that India and Pakistan are now joined at the hip as far as entry into the NSG is concerned.

Working Around China: In 2008, India was able to get a waiver from the NSG as an exceptional case allowing it to engage in international commerce in civilian nuclear technology and equipment even though, as a nuclear weapon state, it did not have all its nuclear facilities under international safeguards as required by the group. China was opposed to the waiver but did not take a public stand on it. It encouraged countries like Ireland, New Zealand, Austria and Switzerland to oppose a consensus on the waiver for India, arguing that it would seriously undermine the NPT, that it would upset the nuclear balance in South Asia and trigger a nuclear arms race, and that a criteria-based rather than a country-specific approach should be adopted in order to avoid the charge of discriminatory practice. This was conveyed to me by the then New Zealand Prime Minister Helen Clark when I called on her to solicit her country's support at the NSG.

However, whenever the issue was raised with the Chinese in meetings between our top leaders or senior officials, the response was a standard mantra: China welcomes the opportunity to promote civil nuclear cooperation with India, but would not want to undermine in any way the international non-proliferation regime. This was ambiguous enough to give China tactical flexibility at the NSG. In light of this ambiguous public posture, our assessment was that if a broad consensus could be built on granting India a waiver, China would not be the one country to raise its hand and oppose the decision. And this is precisely what happened. On the morning of September 6, 2008, even before the last holdout

countries like Ireland, New Zealand and Austria had formally dropped their opposition, China conveyed a message to the Indian delegation that it had decided to support the draft waiver decision.

This is a slippery road and India should be careful that in subsequent deliberations the NSG does not revisit the terms and conditions of the India-specific waiver. In case such a threat is perceived, it is better to preserve the substantive gains already obtained through the waiver rather than to push hard for membership.

Future-proofing the Waiver: Eight years later the geopolitical backdrop against which the NSG meeting took place in Seoul has changed substantially and made it more difficult for India to obtain what should have been a very simple, straightforward decision on membership. The waiver in 2008 had involved very difficult and complex negotiations on the wording of the decision reconciling the different requirements posed by certain key member countries. India's current application for membership could have been approved by a simple reference to the waiver decision itself which spells out the basis on which it was granted. This may have been the reason for China to take a public stand opposing India's membership since there was no scope to attach additional requirements beyond those contained in the waiver.

Membership of the NSG would not make a substantive difference except that it would make the conditions for international civil nuclear commerce and cooperation more predictable in the long run and also ensure that in any future amendments to NSG guidelines India is an active participant.

It is only if there is a fresh discussion on so-called "criteria" applicable to all non-NPT applicants that the criteria on the basis of which India has already received a waiver could be reopened. This is a slippery road and India should be careful that in subsequent deliberations the NSG does not revisit the terms and conditions of the India-specific waiver. In case such a threat is perceived, it is better to preserve the substantive gains already obtained through the waiver rather than to push hard for membership. The waiver has allowed India to engage in civil nuclear commerce with a number of countries. It has entered into long-term nuclear fuel supply agreements with a number of supplier countries and is negotiating the supply of advanced nuclear reactors with Russia, France and the US. Membership of the NSG would not make a

substantive difference except that it would make the conditions for international civil nuclear commerce and cooperation more predictable in the long run and also ensure that in any future amendments to NSG guidelines India is an active participant.

A More Confident China's Strategy: Why has China taken a more public and upfront position opposing India's membership in the NSG? Clearly China today is a more confident and assertive power than in 2008. It may even consider being the last man standing as a demonstration of its newfound great power status rather than a sign of international isolation. Trying to isolate or embarrass China on this count may therefore be counterproductive. Second, there is a clear enhancement of China's commitment to Pakistan, not only as its traditional proxy against India but also because it has been assigned a key role in Xi Jinping's ambitious One Belt, One Road project. Third, it is to relegate India to the minor league by clubbing it together with Pakistan, thereby dismissing the de-hyphenation which the US has projected at least rhetorically. This also seeks to reject the India-China hyphenation which US strategy appears to promote. China considers itself as being in the same league as the US.

The NSG drama has brought to the surface trends which have been incipient so far but whose implications go beyond the immediate issue of NSG membership and reflect the ongoing changes in the geopolitical landscape. We should take advantage of the NSG experience to carefully assess these changes, their impact on India and fashion an appropriate response strategy. That is more important than the pursuit of NSG membership.

Source: <http://m.thehindu.com/opinion/op-ed/>

the-nsg-membership-the-writing-on-the-great-wall/article8776041.ece, 27 June 2016.

OPINION – C. Uday Bhaskar

India Needs to Recalibrate NSG Strategy

China has just tipped its hand in relation to India ahead of the NSG plenary in Seoul on June 24. An op-ed in the *Global Times* (June 14) titled 'India mustn't let nuclear ambitions blind itself' gravely noted: "Beijing insists that a prerequisite of New Delhi's entry is that must be a signatory to the NPT while India is not. Despite acknowledging this legal and systematic requirement, the Indian

media called China's stance obstructionist." This brief comment is the first semi-official articulation of China on the NSG and predictably obfuscates the issue. In making this assertion about the NPT, Beijing is being characteristically innovative and artful in how it first distorts and then presents various facts specific to the nuclear domain.

Having based its objection to India's admission to the NSG on the charge that India is a non-signatory to the NPT, the op-ed (and by

extension Beijing) glosses over the fact that there is a precedent which could be cited to advance the Indian case.

The op-ed further avers that Beijing is convinced that the US "supply of nuclear technologies to enhance India's deterrence capability is to put China in check". This again is counter-factual for the entire US-India nuclear cooperation agreement mooted in 2005 and completed in late 2008 is only about the civilian nuclear spectrum and is totally non-military in nature. China's artfulness and recourse to embroidered facts is embedded in the righteous anxiety it seeks to convey about an India-Pakistan nuclear arms race – an exigency that it posits as "a likely outcome" in the event India is admitted into the NSG.

Beijing is convinced that the US "supply of nuclear technologies to enhance India's deterrence capability is to put China in check". This again is counter-factual for the entire US-India nuclear cooperation agreement mooted in 2005 and completed in late 2008 is only about the civilian nuclear spectrum and is totally non-military in nature. China's artfulness and recourse to embroidered facts is embedded in the righteous anxiety it seeks to convey about an India-Pakistan nuclear arms race – an exigency that it posits as "a likely outcome" in the event India is admitted into the NSG.

The op-ed continues about the nuclear race: "This will not only paralyze regional security, but also jeopardize China's national interests." And the coup de grace that burnishes the Chinese halo of nuclear chastity is the allegation that India has little concern for regional security imperatives and that "South Asia is still facing the harsh reality that the region is mired in nuclear confrontation". Facts again point to another narrative. Asia was weaponized in a nuclear sense when China detonated its first atomic weapon in October 1964 – albeit with help from Moscow. At the time, Chairman Mao was disparaging of nuclear deterrence and boasted that even if the US were to use its weapons against China, there would still be a million Chinese citizens who would rebuild the country.

When the NPT was introduced in 1970, Beijing was dismissive of it and called it a useless piece of paper. It came on board only in 1992 – a little before France. In the interim, for reasons that remain mired in opacity – Beijing was a robust WMD supplier and enabled both North Korea and Pakistan to acquire missile and nuclear weapon technology and material. Specific to South Asia, in an unprecedented initiative, Beijing provided a fully-assembled nuclear weapon to Pakistan in the late 1980s and this was tested at an undisclosed site in May 1990. This was the seed of nuclear tension in the sub-continent that has been kept alive for 25 years by the Sino-Pak combine and has been exacerbated by the audacious link with terrorism.

Rawalpindi, the HQ of the Pakistani Army, has assiduously nurtured radical Islam with jihad as the ideological underpinning and encouraged certain groups to use terror as a tool to de-stabilize India. The covert nuclear weapon capability provided by Beijing is the firewall behind which Rawalpindi has successfully enhanced its ability to invest in terror – and the November 2008 Mumbai attack is illustrative.

In essence, Pakistan refined the strategy of NWET – nuclear weapon enabled terror – with tacit Chinese support. Beijing is not unaware of this chronology of events but has chosen to ignore these 'facts'. The list of exclusions also extends to the extraordinary A.Q. Khan nuclear network that was nonchalantly swept under the carpet as the colossal greed of one man – even if the Pakistani Air Force was used to ferry the illicit material.

Thus, for China to pretend that it is an innocent victim of Indian perfidy flies against the facts on the ground. Yet Chinese diplomats, academics and analysts stubbornly refuse to acknowledge any of these inconvenient facts – despite considerable documentation on the subject in the public domain – and Beijing's ostrich act continues. Hence it is moot to ask if China has 'blinded' itself with such tenacious obfuscation of facts even while pointing a finger at India....

When the NPT was introduced in 1970, Beijing was dismissive of it and called it a useless piece of paper. It came on board only in 1992 – a little before France. In the interim, for reasons that remain mired in opacity – Beijing was a robust WMD supplier and enabled both North Korea and Pakistan to acquire missile and nuclear weapon technology and material.

Many NSG members are extremely uneasy about the NWET-A.Q. Khan DNA of the Pakistan military and a decision on enhancing the group may be deferred. China is unlikely to alter its current orientation about the South Asian nuclear framework – which is to keep India in extended disequilibrium. In the face of such cynical realpolitik, New Delhi will have to review its own approach to the NSG and the political capital it wishes to expend in the run-up to Seoul.

Source: <http://www.sentinelassam.com/>, 20 June 2016.

OPINION – Harsh V. Pant

In or Out of NSG, New Delhi's Carried Out a Diplomatic Masterstroke

It's going right down to the wire and Indian diplomacy has never looked more self-assured and confident.

New Delhi is openly taking on China in a manner few states have dared in recent times. By so doing it is laying down new terms for global politics and setting new parameters for Indian foreign policy. India may or may not get a seat at the NSG, but Indian diplomacy will never be the same again.

India's entry into the 48-member NSG, whose members can trade in and export nuclear technology, has emerged as the latest battleground in the growing Sino-Indian contest. Where the United States and other supporting members have called for India's inclusion based on New Delhi's non-

proliferation track record and the US-India civil nuclear accord, China has made the NPT signature (or lack thereof) its central argument to scuttle India's entry. Beijing has claimed that a "compulsory" requirement for NSG membership is that "the NSG members must be signatories to the NPT." Apart from the rhetoric about the NPT, China has also encouraged Pakistan to apply for NSG membership so as to link New Delhi's entry with that of Islamabad's, knowing well that there will be few takers for Pakistan's case.

After consistently refusing to entertain India's case over the last few weeks, Beijing has indicated that it will "play a constructive role in the discussions on India's NSG membership." Taking a swipe at the United States, Beijing has argued that "the US is one

of those who made the rule that non-NPT countries should not join the Nuclear Suppliers Group." Pakistan, meanwhile, has already claimed that it has "successfully" blocked India's bid to gain membership of the NSG. The United States struck back by revealing that entities of the PAEC have been continuing to supply restricted items and equipment with a direct bearing on the production of nuclear weapons to North Korea in

New Delhi is openly taking on China in a manner few states have dared in recent times. By so doing it is laying down new terms for global politics and setting new parameters for Indian foreign policy. India may or may not get a seat at the NSG, but Indian diplomacy will never be the same again.

If it fails due to China's obstinacy, it will reveal to the world and the Indian people that China has no intention of accommodating Indian aspirations to great power status. For India's traditionally conservative foreign policy establishment, this is not a particularly bad place to be in.

violation of UN sanctions. China has tried to keep this information secret so that it doesn't jeopardize Pakistan's NSG bid. All to ensure that India does not get entry into the NSG!

Indian diplomats, meanwhile, can claim credit for setting the contours of great powers politics today even as they pursue Indian interests with a singular clarity. This is a tribute to the Modi government's deft handling of foreign affairs. It has managed to energize a risk-averse and ossified bureaucracy—a bureaucracy that goes into spasms of hyperventilation

just hearing the term "lateral entry." India's foreign policy bureaucracy is today realizing that a new form of "lateral entry" has forced it to shape up and that's the entry of Modi and his foreign policy team. Modi's style of foreign policy has been so disruptive that a new paradigm of foreign policy is being created that will have long term implications for the country. Those who criticize Modi for only bringing in a new style of Indian diplomacy with no substantive change should now

recognize that stylistic changes in foreign policy have their own logic, eventually leading to new conceptualizations of state power.

As India's dynamic diplomacy on the NSG issue underscores, Modi's style is already having a significant

impact and will gradually end up overturning the long-held shibboleths of Indian foreign policy. If India succeeds in gaining entry into the NSG, it will be a feather in the cap of the Modi government. If it fails due to China's obstinacy, it will reveal to the world and the Indian people that China has no intention of accommodating Indian aspirations to great power status. For India's traditionally conservative foreign policy establishment, this is not a particularly bad place

to be in. India is finally proactively shaping global outcomes, not merely reacting to the actions of the others.

Source: <http://thediplomat.com/2016/06/in-or-out-of-nsg-new-delhis-carried-out-a-diplomatic-masterstroke/>, 23 June 2016.

OPINION – Mail Today Bureau

Why NSG Membership is Important for India

The issue of India's membership of the NSG has been the focus of significant public and media attention over the past few weeks. It appears to have emerged as the single-most critical foreign policy priority for the Modi government. The government is according so much importance to the issue that PM Modi hurriedly decided to include visits to Switzerland and Mexico during his tour to the US – to obtain categorical support for India's membership at the NSG plenary in Seoul on June 23-24. It is a reflection on Modi that he was able to get unequivocal support from the two countries, although they had initially opposed India's entry into NSG in 2008.

Opposition: Under normal circumstances the issue would not have assumed such importance. What appears to have brought it in the spotlight is the blatant opposition by China to India's entry into the elite nuclear club. Over the past few weeks Beijing has issued several statements maintaining that no single country waiver should be granted to India. It stated that India, in any case, is not eligible to become a member of NSG as it is not a member of the NPT, adherence to which is necessary for the entry. At other times Beijing stated that Pakistan too has similar credentials to join the NSG. China has said in no uncertain terms that India's membership will "jeopardise" China's national interests and touch

a "raw nerve" in Pakistan.

None of China's contentions appears to hold much water. Yet, it will be useful to understand what the purpose and mandate of NSG is. It is doubtless true that NSG was established in the wake of India's Pokharan tests in 1974. The intent and purpose of NSG, however, are different from that of NPT. NSG is not an international treaty. It is a group of "nuclear supplier countries that seeks to contribute to non-proliferation of nuclear weapons through implementation of two sets of Guidelines for nuclear exports and nuclear-related exports". After more than 25 years of its establishment, some suggested guidelines were evolved in 2001 at Aspen for admitting new

members to the organisation. Amongst them, membership of NPT is only a guideline, a consideration, and not a mandatory requirement while deciding on a country's application.

India is keen to become a member of NSG and other export control regimes as it seeks to significantly expand its nuclear power generation and also enter the export market in coming years. Although the 2008 waiver by NSG does

provide significant possibilities to India to engage in civilian nuclear trade with other countries (and indeed, India has entered into such agreements with several countries like Russia, France, UK, US, Kazakhstan, Australia and others), membership of NSG will provide greater certainty and legal foundation to India's nuclear regime. This would also provide greater confidence to countries who invest billions of dollars for setting up ambitious nuclear power projects in India.

Performance: India's track-record in observing the provisions of NPT and NSG while not being a member of either body is impeccable. If NSG was able to grant waiver to India in 2008 on the basis

NSG is not an international treaty. It is a group of "nuclear supplier countries that seeks to contribute to non-proliferation of nuclear weapons through implementation of two sets of Guidelines for nuclear exports and nuclear-related exports". After more than 25 years of its establishment, some suggested guidelines were evolved in 2001 at Aspen for admitting new members to the organisation. Amongst them, membership of NPT is only a guideline, a consideration, and not a mandatory requirement while deciding on a country's application.

of its past performance, it should have no objection to admitting it as a member this time.... Usually China has been seen to stay in the background and put up smaller countries in the forefront to articulate opposition to any issue that it does not concur with. This time, in addition to instigating smaller countries to raise objections, China has itself come out openly in opposition to India's membership. Since all decisions at NSG are taken by consensus, any country – small or big – can stand in the way of consensus.

Diplomacy: India has, however, launched a blitzkrieg of hectic diplomatic activity to explain its position and overcome opposition of a few countries. It has also reached out to China to explain that its interest in NSG membership is not guided by any political or strategic considerations but only to facilitate expansion of its clean and green nuclear energy programme.... Most questions raised by China against India's membership have little validity. For instance, membership of NPT is not a condition for becoming a member of NSG. It is only a guiding principle to which consideration needs to be given. Pakistan's credentials for NSG membership are highly flawed and inadequate. Over the last eight years India has separated its reactors which are under IAEA safeguards and those which are not. Pakistan has not undertaken any such exercise....

Source: <http://www.businesstoday.in/>, 22 June 2016.

OPINION – Harsh V Pant

The NSG Discussions Show Indian Diplomacy has Changed for Good

It's going right down to the wire – and Indian diplomacy has never looked more self-assured or confident. It is openly taking on China in a manner few states have dared to in recent times, and in doing so is laying down new terms for global

politics and setting new parameters for Indian foreign policy. India may or may not get a seat at the NSG – but the country's diplomacy will never be the same again.... India's entry into the 48-member elite nuclear club, whose members can trade in and export nuclear technology, has emerged as the latest battleground in the growing Sino-Indian contestation.

Where the US and other supporting members have called for India's inclusion – based on New Delhi's non-proliferation track record and the US-India civil nuclear accord – China has made the NPT signature its central argument to scuttle India's entry. Beijing is claiming that a 'compulsory' requirement for the NSG membership is that 'the NSG members must be signatories to the NPT.' Apart from the rhetoric about the NPT, China has also encouraged Pakistan to apply for NSG membership to link New Delhi's entry with that of Islamabad's, knowing well that there will be few takers for Pakistan's case. After consistently refusing to entertain India's case over the past few weeks, China has indicated that it will 'play a constructive role in the discussions on India's NSG membership.'

Taking a swipe at America, it has argued that 'the US is one of those who made the rule that non-NPT countries should not join the NSG.' Pakistan, meanwhile, has already claimed that it has 'successfully' blocked India's bid to gain membership of the NSG. The US hit back by claiming that entities of the Pakistan Energy Commission (PAEC) have violated UN sanctions by supplying restricted items, aiding nuclear arms production in North Korea. And it's alleged that China has tried to keep this information secret so that it doesn't jeopardise Pakistan's NSG bid – all to ensure that India does not get an entry into the NSG. Indian diplomacy can claim credit for setting the contours of great power politics today, even as it pursues the country's interests with a

singular clarity. It is a tribute to the Modi government's deft handling of foreign affairs. It has managed to energise an ossified bureaucracy adverse to risk, which hyperventilates on just hearing the term 'lateral entry.'

India's foreign policy bureaucracy is realising that a new form of 'lateral entry' has forced it to shape up - and that's primarily due to Modi and his foreign policy team. Modi's style of foreign policy has been so disruptive that a new paradigm of diplomacy is being created, which will have long-term implications. Those who criticise Modi for only bringing in a new style of Indian diplomacy and no substantive change should now recognise that stylistic changes in foreign policy have their own logic, eventually leading to a new conceptualisation. As India's dynamic diplomacy on the NSG issue is underscored, Modi's style is already having a significant impact and will gradually end up overturning long-held shibboleths on foreign policy.

If India succeeds in getting an entry into the NSG, it will be a feather in the cap of the Modi government. If it fails due to China's obstinacy, it will have revealed to the world – and Indians – that China has no intention of accommodating its aspirations. For India's traditionally conservative foreign policy, it's not a bad place to be in. But more heartening is the fact that India is finally proactively shaping global outcomes, not merely reacting to the actions of the others.

Source: <http://www.dailymail.co.uk/>, 23 June 2016.

OPINION – Hina Pandey

Assessing NSS Outcomes: CPPNM Amendment Ratification

The 2016 NSS reached one of its goals in May with two-thirds of the state parties to the CPPNM ratifying its 2005 Amendment. On 8 May 2016, CPPNM/A came into force. This has, by far, emerged as one of the key victories from the six-year old NSS.

While the CPPNM (1987) focused on the physical protection of nuclear material used for peaceful purposes during international transport, it did not cover the same in domestic use/storage and transport. The newly ratified Amendment to the CPPNM fills this lacuna.

Indeed, the ratification is one of the tangible gains within the nuclear security architecture as it strengthens the evolving nuclear security regime by legally making it mandatory for state parties to bear complete responsibility to protect nuclear materials for civilian use.

The Amendment is consequential for various reasons. One, it is a substantial development in the strengthening of the evolving nuclear security regime. Till date it remains the only international convention of this nature that is legally binding. Two, it brings uniformity to nuclear safety practices among 64 contracting parties out of 103 in the area of physical protection of nuclear materials. Three, the ratification not only expands the scope but also brings a 29-year old original CPPNM to near completion as 102 out of 153 total parties now adhere to the guidelines of physical protection of nuclear materials.

If India succeeds in getting an entry into the NSG, it will be a feather in the cap of the Modi government. If it fails due to China's obstinacy, it will have revealed to the world – and Indians – that China has no intention of accommodating its aspirations.

The Amendment is consequential for various reasons. One, it is a substantial development in the strengthening of the evolving nuclear security regime. Till date it remains the only international convention of this nature that is legally binding. Two, it brings uniformity to nuclear safety practices among 64 contracting parties out of 103 in the area of physical protection of nuclear materials. Three, the ratification not only expands the scope but also brings a 29-year old original CPPNM to near completion as 102 out of 153 total parties now adhere to the guidelines of physical protection of nuclear materials.

The threat from non-state actors acquiring illicit nuclear technology post 9/11 prompted the need to expand the scope of the existing international mechanism protecting nuclear material physically and against sabotage. Four, in a way the ratification has facilitated a shared platform of communication as the state parties take on new obligations to contribute to information sharing related to sabotage/credible threats of sabotage.

The implementation of the Amendment also seeks to facilitate cooperation among states and the IAEA to locate and recover stolen nuclear material. Five, it is anticipated that an effective execution of the revised agreement would contribute to mitigating nuclear risks, especially the ones related to possible terrorist attacks involving nuclear material, and make it harder to smuggle nuclear material. Six, the ratification could be viewed as a demonstration of the collective resolve of states towards acting together in matters of nuclear security.

Efficacy Dilemma: The success of the CPPNM/A however, can only be evaluated after the first review conference to be held five years post its entry into force. The number of participating states would also likely impact the efficacy of implementation.

There are three foreseeable problems in this regard. First, 39 out of 102 remain outside of the Amendment, including the P-5 like France and Russia. Both the countries are known to have a robust nuclear energy industry. Second, the CPPNM allows for a provision under which the state parties can receive exemption from a particular article. For instance, many countries have already expressed reservations about Article 17 (2), which calls on the parties to settle disputes in a peaceful manner through the ICJ or by arbitration.

There are already a large number of state parties such as France, China, South Korea and Pakistan, to name a few, who remain outside of the scope of dispute settlement. This further reduces the enforceability of the CPPNM to some extent.

Finally, the CPPNM does not provide for any mechanism of inspection.

This implies that the effective implementation of the Amendment would ultimately depend upon the voluntary commitments of the state parties. This is particularly problematic in the South Asian context, and it is important to note how this gap would play out in the foreseeable future. Pakistan signed the CPPNM/A this year. However, it is interesting that it ranks 38th in the 'Sabotage' rankings of the NTI 2016 index, including indicators on quantities and sites such as sites and transportation, control and accounting procedures, and cyber security and is therefore at the highest risk in South Asia.

Progress thus is going to be determined by the degree of resolve and available infrastructure to support the policy decision. While countries may be legally

obligated to provide security assurances, the CPPNM does not adequately address the challenges that may emerge from its violation, unintentional or otherwise. The case of Pakistan only explains an existing reality - it is equally applicable to every state party adhering to the CPPNM.

While the CPPNM would have to operate with its limitations, it remains the only international convention of legal standing in the realm of physical protection of nuclear materials. It should therefore be viewed as process rather than an end in itself.

Source: <http://www.ipcs.org/article/india/assessing-nss-outcomes-cppnm-amendment-ratification-5062.html>, 16 June 2016.

OPINION – Javier Solana

Reviving the Non-proliferation Agenda

US President Obama's recent visit to Hiroshima was no typical diplomatic stop. Not only did it mark the first visit by a sitting US president to that city, which was destroyed by an American nuclear bomb in 1945; it also drew attention to

Obama's record on non-proliferation. In a 2009 speech in Prague, Obama identified nuclear weapons as "the most immediate and extreme threat to global security," owing to their potential to fall into the hands of terrorists or other rogue elements, and committed to reducing their role in America's national security strategy. In his moving Hiroshima address, Obama again emphasized the need to pursue a world without nuclear weapons. He described the "moral revolution" that must accompany technological progress, with societies resisting the "logic of fear" that compels them to cling to their nuclear arsenals.

But, though both speeches expressed similar ideas, they were delivered against very different policy backdrops. Indeed, the Obama administration's nuclear policy has changed substantially since 2009, when containing nuclear proliferation was among its central foreign-policy concerns. In 2010, Obama brought world leaders together for the first-ever NSS, which focused on keeping nuclear material out of the hands of terrorists – a focus that has since proved to be justified. Though the initial aim of freezing stocks of plutonium and highly enriched uranium was not achieved, the four summits held since then have brought about a reduction in other sources of radioactive material, and safety measures have been improved.

The 2010 summit came just days after another apparent victory for non-proliferation: Obama and then-Russian President Medvedev signed the

New START, which committed them to halve their stores of strategic nuclear missile launchers. Just a year earlier, then-US Secretary of State Clinton and Russian Foreign Minister Lavrov announced a "reset" in bilateral relations. Since then, however, the relationship has deteriorated, taking with it hope for further cooperation.

In fact, Obama's entire non-proliferation agenda has lost considerable momentum. Russia chose not to attend the latest NSS, held in Washington, DC, earlier this 2016. And not only has the US not proposed any new international non-proliferation initiatives; at a 2015 conference to review the NPT, it moved to avoid a conference on a nuclear weapons ban for the Middle East, in order to avoid increasing tensions with Israel. Moreover, the Obama administration has reduced America's own nuclear arsenal more slowly than any US administration since the end of the Cold War, instead promoting its modernization – an effort that will require an estimated \$1 trillion in investment over the next three decades. Though the program is technically aimed at improving existing weapons' reliability – and thereby allowing future reductions – critics emphasize that as more small, high-precision nuclear arms are developed, the likelihood that they will be used increases.

Obama has, however, secured one major victory for non-proliferation: helping to close a long-awaited international deal with Iran to prevent it from using its civilian nuclear program to develop weapons. After years of sclerotic negotiations,

Obama's entire non-proliferation agenda has lost considerable momentum. Russia chose not to attend the latest NSS, held in Washington, DC, earlier this 2016. And not only has the US not proposed any new international non-proliferation initiatives; at a 2015 conference to review the NPT, it moved to avoid a conference on a nuclear weapons ban for the Middle East, in order to avoid increasing tensions with Israel.

Because just one nuclear-armed country can make achieving regional stability a near-impossible task, stopping Iran had far-reaching regional implications. By easing the fears of Iran's regional rivals, the deal created some space for the potential development of a Middle Eastern security structure. It even provides a model for future multilateral agreements on thorny security-related topics.

domestic developments in Iran – namely, the 2013 election of the more moderate Iranian President Rouhani – provided a critical diplomatic opening, which Obama seized. The breakthrough provided clear evidence that while institutions are very important in world affairs, individuals can sometimes be decisive.

The Iran deal was a major achievement, and not just because it should help to mitigate the risks arising from that country. Because just one nuclear-armed country can make achieving regional stability a near-impossible task, stopping Iran had far-reaching regional implications. By easing the fears of Iran's regional rivals, the deal created some space for the potential development of a Middle Eastern security structure. It even provides a model for future multilateral agreements on thorny security-related topics.

But this triumph should not invite complacency. Nuclear weapons remain a deep and urgent threat to security and stability worldwide. Only nuclear weapons can turn a small confrontation into a catastrophe on the scale of the one Obama commemorated in Hiroshima. Given this, the drive to eliminate nuclear weapons must be revived with all of the vigor of Obama's first years in office. That drive should take us, first and foremost, to North Korea, which, despite severely limited means, continues to invest heavily in advancing its nuclear program. The international community's best option for influencing North Korea is China, which has long had close relations with – and strong economic influence over – the Hermit Kingdom.

And China's approach toward North Korea seems to be changing, spurred by the nuclear issue. Earlier 2016, China decided not to use its veto

power in the UNSC to block a tough new round of sanctions on North Korea in response to its latest round of nuclear tests. Yet a visiting North Korean delegation recently announced that the country was committed to continuing its nuclear program.

Because just one nuclear-armed country can make achieving regional stability a near-impossible task, stopping Iran had far-reaching regional implications. By easing the fears of Iran's regional rivals, the deal created some space for the potential development of a Middle Eastern security structure. It even provides a model for future multilateral agreements on thorny security-related topics.

China's approach toward North Korea seems to be changing, spurred by the nuclear issue. Earlier 2016, China decided not to use its veto power in the UNSC to block a tough new round of sanctions on North Korea in response to its latest round of nuclear tests. Yet a visiting North Korean delegation recently announced that the country was committed to continuing its nuclear program.

Given that there can be no security in East Asia – especially for South Korea and Japan – without a nuclear deal, strong international action is crucial. Specifically, the international community must escalate its response to North Korea's increasingly unruly behavior, by compelling the country's leaders to engage in negotiations with world powers regarding its nuclear program. For talks to be successful, however, China and the US – which have plenty of disagreements of their own – must work together, and the other members of the UNSC must facilitate such cooperation.

Obama's address in Hiroshima carried huge symbolic significance. But, with more than 15,000 nuclear weapons still in the world, symbolism is not enough. It is time to take action to advance non-proliferation.

Source: www.project-syndicate.org, 23 June 2016.

OPINION – Manpreet Sethi

Missile Missives from North Korea

Year 2016 has been particularly an active one. In fact, North Korea dictator Kim Jong-un ensured it literally started with a bang for everyone, when the DPRK greeted the world with its fourth nuclear test on Jan 6, 2016. The country claimed that it had detonated its first hydrogen bomb, which was a "complete success."

A rocket launch was undertaken in February and on March 9, the country claimed that it had mastered miniaturisation capability and could launch 1,000 kg payload on Unha 3 missile to reach Alaska. On April 15, Pyongyang announced the conduct of another land-based missile of over 3,000 km range.

Even as this reportedly failed, another missile test was undertaken a week later, this time from a submarine. It travelled a mere 30 km. But, it was a success over an earlier similar test in December 2015 that had failed at ignition. Literally inching towards better capabilities, on June 22, Pyongyang announced another two launches of its 3,000-4,000 km intermediate range missile. While one failed, the other was a success as it flew 400 km over the Sea of Japan.

Such claims, notwithstanding the failures, rattle the world, especially the US, Japan and South Korea. Missile defence deployments continue in these nations and in recent years, an incipient internal debate in Tokyo and Seoul on having nuclear deterrents of their own has also been heard. Meanwhile, the international community normally responds to DPRK provocations with the usual criticism and rounds of 'most stringent sanctions'.

The last time North Korea undertook such an act, the UN Security Council imposed heavier sanctions that included inspection of all cargo in and out of the country, ban on all weapons trade and an expansion of the list of prohibited individuals. Obviously, little is working as the North Korean regime remains immune to both the impact of the sanctions as well as the hardships faced by its people.

Goodies for the leaders continue to roll in from China, which remains North Korea's largest trading partner accounting for more than 74% of its trade. Meanwhile, American reports suggest that Pakistan continues to sell nuclear materials

which itself has procured from Chinese entities to DPRK.

What exactly is the message that Pyongyang is seeking to convey through the monthly missile launches? Why does it seemingly remain undeterred by test failures? The first message, of course, is that even the failures are helping make technology gains, pushing North Korea bit by bit towards what Kim calls a "pre-emptive nuclear attack capability" to be able to hit Japan and Guam, at the least.

No Direct Talks: A second missive of the missiles, especially for the US, is "Engage with us". While Washington has remained rigid on not talking directly to Pyongyang in recent times, the fact remains that there is little chance that a political solution could be found unless the two negotiate bilaterally. This is a major lesson from Iranian nuclear deal too.

What exactly is the message that Pyongyang is seeking to convey through the monthly missile launches? Why does it seemingly remain undeterred by test failures? The first message, of course, is that even the failures are helping make technology gains, pushing North Korea bit by bit towards what Kim calls a "pre-emptive nuclear attack capability" to be able to hit Japan and Guam, at the least.

The moment Washington and Tehran began direct talks, a resolution looked possible. So, while the Six Party talks could provide a platform, Washington and Pyongyang will have to engage each other. For now, North Korea remains low on American foreign policy priorities even as Kim Jong-un hankers for attention. But, ironically,

the more he provokes, the more he alienates himself.

Outsourcing the resolution of the DPRK problem to China cannot yield desired results. China can hardly be desirous of reining in a problem that keeps US on the tenterhooks. Why should it be interested in finding a way to disarm North Korea and have its allies sitting at its own borders? And as a North Korean leader had said soon after the conduct of nuclear test "A new puppy knows no fear". Ten years older, the young nuclear country remains as fearless and ready to play its nuclear-missile games.

Proactive American diplomacy, however distasteful it may appear to the US, can be the only way of finding a solution to this problem. Bitter bilateral hostility and lack of effective American leadership in the run up to the elections do not yet offer a promise of this kind.

Meanwhile, one can well predict more missile tests by Kim Jong-un closer to the end of the year as he would try to catch the attention of the new American president. It remains to be seen who that would be and whether he/she would like to earn his/her foreign policy credits by decoding the missile missiles flying out of Pyongyang. But the earlier it happens, the better since DPRK continues to sharpen its nuclear teeth – a development that could result in serious consequences for international security.

Source: *Deccan Herald*, 27 June 2016.

OPINION – K.S. Parthasarthy

A Wreath of White Roses Over the Ruins of Mehrangir, Homi Bhabha's Home

...For us, the story of Mehrangir is over with our virtual laying of a wreath of white roses on its ruins (because we cannot trespass upon the hallowed premises now). ...On Bhabha's initiative, the erstwhile Atomic Energy Establishment, Trombay (AEET) started to grow roses and, in 1960, the Trombay rose garden had over 750 varieties. Today, a wreath of white roses says it all.

The writing was on the wall when the cash-strapped NCPA sold the 'family silver' – about 900 priceless articles like clocks, textiles, rare rugs and carpets, silverware, glass, pottery, antique furniture, paintings and other artefacts that had been inseparable parts of the Bhabha legacy – at three auctions in 2011. When auctioneers were happy, experts on Bhabha's legacy as well as historians were upset and critical of the NCPA. On August 23, 2012, *The Daily Mail* (UK) quoted Indira Chowdhury of the Centre

for Public History, and co-author of *A Masterful Spirit: Homi J. Bhabha*, thus: "Mehrangir and all that was inside the building are an invaluable part of history. ... Every piece of art has a story to tell. For instance, furniture, some of which was custom-built for the Bhabhas, can tell us a lot about human skills."

...Alongside eminent scientists such as C.N.R. Rao, Anil Kakodkar and R. Mashelkar, I had wanted to save Mehrangir, and I had written a few articles.... However, we scientists failed to convince the government to acquire Mehrangir along with its priceless legacy; we acted very late. And our indifference was inexcusable. When those in authority at the DAE heard of the possible fate of Mehrangir, they wrote letters through "proper channels" to the state government. Chavan, then the CM of Maharashtra and recipient of the latest requests, sent a letter to PM Modi requesting him to take steps to acquire the house and declare it as a memorial in honour of Homi Bhabha (scientists are government servants; they have limitations).

At the same time, employees of the BARC filed a PIL even if judicial recourse didn't promise to help. One can see how futile such efforts were through an *Indian Express* article published in April 2015; it read that "construction of the bungalow was going on in 1941 and hence it cannot be termed as one of "historical importance" under existing regulations" as under the the Maharashtra Ancient Monument & Archaeological Sites & Remains Act, 1960. I do not blame them. The officials had their limitations and had to work within the law. Chavan, who is a technocrat and a former Minister of State at the Prime Minister's Office, was apparently unaware of the subtleties of law.

Looking back belatedly, we realise that only a decision by the central government, taken at the highest levels, would have saved Mehrangir.

We scientists failed to convince the government to acquire Mehrangir along with its priceless legacy; we acted very late. And our indifference was inexcusable. When those in authority at the DAE heard of the possible fate of Mehrangir, they wrote letters through "proper channels" to the state government.

Bhabha was a great scientist.... Let me congratulate BARC workers for filing the PIL, which kept the flame glowing for some time. ...The Centre has asked the state government to acquire the building. Both had been passing the ball back and forth, and it became clear that neither entity considered Mehrangir's retention a priority.

When the controversy was at its peak, Dharker, a senior journalist and an NCPA sympathiser, had claimed that Jamshed Bhabha lived in Mehrangir all his life and Homi Bhabha had spent only a few years there – that when his parents bought it, he'd been overseas and later spent a lot of time in Delhi. Obviously, Dharker did not have access to the Tata Central Archives, the TIFR Archives or other related documents, which set the record straight. Mercifully, Dharker did not ask for a ration card or driving licence in Homi's name to prove that he lived in Mehrangir.

Thanks to the generosity of NCPA office bearers, TIFR received from Mehrangir some priceless letters of the Bhabha family. I saw letters written by Bhabha and his mother, which show that the family moved in to Mehrangir on March 16, 1939. Homi and Jamshed lived with their parents when they came back from England in the same year. The auction document, a collector's item, published by NCPA thus describes the eminence of Mehrangir:

'Mehrangir can boast of visits by some of the most prominent personalities of those times, including Nehru, the first PM of India, who was a dear friend of Homi Bhabha. Also in 1960, the family entertained the Queen of England in the very dining room which had witnessed visits by many famous personalities.' Mehrangir had been designed by Bhabha himself; he was the one who named it so. I got in to Indira Chowdhury, quoted in the *Daily Mail* article, about the last-ditch effort of NCPA office-bearers to maximise the yield in the auction from builders and investors. ...She clarified that she had not noticed that the auction document cited their work.

...She recalled that in the dining room was a large portrait of Meherbai, painted by Bhabha himself, and of his aunt Lady Meherbai Tata. "Meherbai

Bhabha wears an exquisite Chinese gara sari that hints at the many uses that were found for the treasures that came in through trade," she added in the article. Chowdhury bemoaned the fact that the auction catalogue referred to them as the "Bhabha ladies".

The fact that one was his mother and the other his father's sister who had married Sir Dorab Tata and after whom the Lady Tata Hospital is named was expunged. The catalogue introduced the 'Bhabha ladies' only to talk about the emeralds and the 'European-cut diamonds' that one of them is wearing. On the first floor were amazing writing implements of the early 20th century – telescopic pencils and expandable barrel fountain pens. One had the signature of Mehri D. Tata embossed on it....

"After it was sold I did not believe that the house would be brought down. And even now I find it hard to believe that Mehrangir has been reduced to rubble", she showed her feelings in an e-mail message when I informed her that the owner has demolished building. ...

Source: <http://thewire.in/>, 25 June 2016.

NUCLEAR STRATEGY

RUSSIA

Syria Strike: Russia Unleashes Lethal Aerial Arsenal on Aleppo

Russia is breaching international conventions by dropping incen-diaries similar to white phosphorus on to residential neighbourhoods in the Syrian city of Aleppo in what is thought to be the prelude to a ground assault to retake the city from rebel forces. Photographs have shown what experts believe to be a thermo-baric bomb, the most powerful explosive apart from a nuclear weapon, being detonated next to urban areas, with potentially devastating effects for civilians.

Video footage shows the glowing showers of what is thought to be thermite raining down on a rebel-held suburb in the west of the city and starting huge fires.... Thermite bombs are incendiary weapons that burn at extremely high temperatures

and are difficult to extinguish. Like phosphorus, thermite causes severe and often fatal burns. "I'd say thermite is worse than white phosphorus as it's extremely difficult to put out," said Higgins, founder of Bellingcat, an investigative journalism website, who identified the weapons.

... Moscow is also dropping what appear to be fuel-air bombs, -described by one arms expert as "a mini nuclear bomb" next to residential areas. Thermobaric weapons generate a high-temperature explosion followed by a blast wave that lasts far longer than a conventional explosive... While thermite and white phosphorus are not completely banned under the Convention on Certain Conventional Weapons, they are not permitted to be used as an -offensive weapon in civilian areas. A report by Al Masdar News claims the munitions were targeted at positions of Islamist rebel groups. Sources inside the city said the munitions were hitting residential areas. Thermite is only the latest banned or restricted weapon to be deployed by the Kremlin in Syria. There have also been reports of cluster munitions – bombs that break up in the air into smaller incendiaries that can cause death and injury over a wide area – since Russia entered the conflict on President Assad's side September 2015

Source: <http://www.theaustralian.com.au/>, 23 June 2016.

Thermite is only the latest banned or restricted weapon to be deployed by the Kremlin in Syria. There have also been reports of cluster munitions – bombs that break up in the air into smaller incendiaries that can cause death and injury over a wide area – since Russia entered the conflict on President Assad's side September 2015.

When fully-developed, the Musudan missile would have a range of kilometres and be capable of striking targets in Japan, South Korea and the US military base on the Western Pacific island of Guam. The South Korean military are assuming the missile tests failed.

New Delhi as well as the Embassies of The Netherlands and Luxembourg.

India would like to thank each of the thirty-four MTCR Partners for their support for India's membership. We would also like to thank Ambassador Piet de Klerk of The Netherlands and Mr. Robert Steinmetz of Luxembourg, co-Chairs of the MTCR, for facilitating

India's accession to the regime. India's entry into the regime as its thirty-fifth member would be mutually beneficial in the furtherance of international non-proliferation objectives.

Source: http://mea.gov.in/press-releases.htm?dtl/26953/India_joins_Missile_Technology_Control_Regime, 27 June 2016.

NORTH KOREA

North Korea Conducts Two More Ballistic Missile Tests

North Korea test-fired two intermediate-range missiles on 22 June, the latest in a series this year that has moved the UNSC to impose the toughest ever sanctions regime against the isolationist state. The first Musudan ballistic missile crashed shortly after being launched from Wonsan, on the east coast of North Korea, like four others tested since

February, the South Korean Ministry of Defence said.

However, the sixth flew about 400 kilometres and reached an altitude of 1,000 kilometres, showing that the previous tests have helped North Korea make progress towards making operational a fleet of ballistic missiles capable of delivering nuclear warheads. The tests were conducted

BALLISTIC MISSILE DEFENCE

INDIA

India Joins Missile Technology Control Regime

India has joined the MTCR this morning (27 June 2016). The MTCR Point of Contact in Paris has conveyed the decision regarding India's accession to the regime through the Embassy of France in

hours before senior diplomats from the six countries previously involved in stalled talks on North Korea's nuclear programme met for the first time, at an informal, closed-door security forum in Beijing.

When fully-developed, the Musudan missile would have a range of kilometres and be capable of striking targets in Japan, South Korea and the US military base on the Western Pacific island of Guam. The South Korean military are assuming the missile tests failed, but Japanese Defence Minister Gen Nakatani said the prolonged flight of the second missile showed "some capability". The six-party talks, suspended in 2012, included China, Japan, North and South Korea, Russia and the US. Pyongyang's sole major ally, Beijing, has backed sanctions against it and repeatedly called for the reactivation of the six-party forum since the North reactivated its nuclear programme in January.

North Korea conducted its fourth nuclear weapon test in January. It is believed to possess up to 10 nuclear warheads and last year reactivated a reactor at its Yongbyon nuclear facility, which is capable of producing sufficient enriched plutonium for an additional two devices per year.

This 2016 tests are helping North Korea to improve its ballistic missile technology. North Korea may have tested an imitation nuclear warhead to see whether it was damaged while re-entering the Earth's atmosphere, says the Korea Times, a Seoul-based English language newspaper. The missile tests came three days before the 66th anniversary of the breakout of the Korean War, the Japan Times reports. North Korea sent officials to attend the informal security forum in Beijing for the first time since 2012, the

Hong Kong-based South China Morning Post reports. North Korean nuclear envoy Choe Son-hui reportedly told the Beijing security forum "the six-party talks are dead", according to South Korea's state Yonhap News Agency.

Source: <http://www.theworldweekly.com/>, 22 June 2016.

Kim Jong-Un Says New Missile can Strike US Bases in Pacific

When fully-developed, the Musudan missile would have a range of kilometres and be capable of striking targets in Japan, South Korea and the US military base on the Western Pacific island of Guam. The South Korean military are assuming the missile tests failed

North Korean leader Jong-Un hailed the successful test of a powerful new medium-range missile as a direct threat to US military bases across the Pacific, as the UN Security Council met late 22 June to consider its response. Mr. Kim, who personally monitored 22

June Musudan missile test, applauded a "great event" that significantly bolstered the North's pre-emptive nuclear attack capability, the official KCNA news agency reported. ...

The Musudan has a theoretical range of anywhere between 2,500 and 4,000 km, with the upper estimate covering US military bases as far away as Guam. After a string of failures in recent months, North Korea tested two Musudans on 22

The Musudan has a theoretical range of anywhere between 2,500 and 4,000 km, with the upper estimate covering US military bases as far away as Guam. After a string of failures in recent months, North Korea tested two Musudans on 22 June, one of which flew 400 km into the Sea of Japan (East Sea). KCNA said the missile had been fired at a high angle to simulate its full range, and had reached a maximum height of more than 1,400 km.

June, one of which flew 400 km into the Sea of Japan (East Sea). KCNA said the missile had been fired at a high angle to simulate its full range, and had reached a maximum height of more than 1,400 km

UNSC Meets: The launch was condemned by the international community and the UNSC met for closed-door consultations on how best to respond. France's deputy UN

ambassador Lamek, whose country holds the council presidency, told reporters after the meeting that Council members had been united in "deep concern and opposition" to the test which was a clear violation of UN resolutions. Existing

UN measures prohibit North Korea from using ballistic missile technology. The US, NATO and Japan also denounced the test, with South Korea vowing to push for tighter sanctions on Pyongyang.

ICBM Test Next?: Lewis, director of the East Asia Non-proliferation Program at the Middlebury Institute of International Studies in California, said the international community had to find a way to get Pyongyang to accept a missile test moratorium. "If we do nothing, this ends in a successful flight test of the Musudan-based KN-08," Mr. Lewis said...

There were also multiple photos of the missile blasting off from a mobile launcher near the eastern port of Wonsan. The international outcry suggests North Korea could face renewed sanctions, either on a unilateral level or from the United Nations. After Pyongyang conducted a fourth nuclear test on January 6, 2016, followed by a long-range rocket launch February 7, the Security Council adopted its most punishing sanctions yet against North Korea. Any further measures would require the support of veto-wielding permanent council member China, traditionally the North's closest ally.

Responding to 22 June launch, China's Foreign Ministry had cautioned against "any action that may escalate tension" and called for a resumed dialogue on Pyongyang's nuclear drive. US Defence Secretary Carter, meanwhile, stressed the importance of strengthening US missile defence systems, including those deployed among regional allies South Korea and Japan — a strategy strongly opposed by China. "We need to stay ahead of the threat by making sure that our missile defenses are good qualitatively, but also

constantly expanding," Mr. Carter said.

Source: <http://www.thehindu.com/>, 23 June 2016.

RUSSIA

Russia Successfully Tests Short-Range Anti-Missile System

The Russian Air Force has successfully carried out tests of a new short-range anti-ballistic missile system, the Defense Ministry said in a statement on 21 June 2016. The launch took place at the Sary-Shagan missile testing site in Kazakhstan. The missile "successfully completed its task, hitting the target at the scheduled time," said Aerospace Force Air Defense Chief Gumyonny. The move follows the activation of a new NATO missile defence station in Romania. Tensions between Russia and the military alliance

have become increasingly strained in recent months, with both sides deploying additional border forces. The Romanian station is part of a larger system that will also include a base in Poland.

The international outcry suggests North Korea could face renewed sanctions, either on a unilateral level or from the United Nations. After Pyongyang conducted a fourth nuclear test on January 6, 2016, followed by a long-range rocket launch February 7, the Security Council adopted its most punishing sanctions yet against North Korea. Any further measures would require the support of veto-wielding permanent council member China, traditionally the North's closest ally.

Russia has strongly condemned the missile shield, which the Kremlin believes has been created to thwart the country's nuclear capabilities. Speaking on the subject in May, Russian President Putin said that although Russia did not want to be involved in the arms race, the country "would not stand still if faced with a situation where the balance of force in the world could be broken." NATO has maintained that the missile defense system is designed to stop possible attacks from Iran.

Russia has strongly condemned the missile shield, which the Kremlin believes has been created to thwart the country's nuclear capabilities. Speaking on the subject in May, Russian President Putin said that although Russia did not want to be involved in the arms race, the country "would not stand still if faced with a situation where the balance of force in the world could be broken."

NATO has maintained that the missile defense system is designed to stop possible attacks from Iran.

Source: <http://www.themoscowtimes.com/>, 21 June 2016.

SAUDI ARABIA

Saudi-led Coalition Intercepts Ballistic Missile Inside Yemen

Saudi Arabia has seemingly confirmed that the Patriot air-defence systems known to be deployed to Yemen's Marib province have successfully intercepted a ballistic missile. The official Saudi Press Agency reported on 21 June that the Saudi-led coalition had released a statement saying it destroyed a ballistic missile fired towards Marib city from inside Yemen at around 1215 h local time. It added that coalition aircraft then immediately hit the missile launch location. Satellite imagery shows that the Saudi-led coalition has had Patriot batteries in Marib since September 2015. An allied Yemeni commander has previously indicated that ballistic missiles heading towards the coalition base in Marib have successfully been intercepted, but the coalition has only previously confirmed the interception of ballistic missiles fired into Saudi Arabia, the most recent being on 31 May.

The Saudi intercepts have generally dovetailed with claims that the Ansar Allah group and allied military units have launched ballistic missiles into the kingdom. However, the only attack that appears to have been claimed on 21 June was stated to have involved an "Uragan" projectile, seemingly a reference to a 220 mm BM-27 multiple rocket launcher system. The pro-Ansar Allah SABA news agency and the Al-Masirah TV channel both reported that the Uragan hit Camp Tadawin, which appears to be a reference to the coalition base just north of Marib city where the Patriots are deployed.

Source: <http://www.janes.com/>, 23 June 2016.

United Nations

UN Calls for Emergency Meeting After North Korea's 'Brazen' Ballistic Missile Launch

North Korea on June 22 said that it successfully launched intermediate-range ballistic missile and claimed that it could hit US military operations in the Pacific. According to reports, the official Korean Central News Agency, in a statement, said that the firing was "successfully conducted

without giving any slightest effect to the security of surrounding countries." The statement added that the Hwasong-10 is a surface-to-surface medium long-range strategic ballistic missile which flew 400 kms and achieved an altitude of 1,414 kms before landing safely in the waters.

North Korean leader Jong Un reportedly said that the missile can "attack in an overall and practical way the Americans in the Pacific operation theatre," and that it was "an important occasion in further strengthening the nuclear attack capacity." Reports indicate that the UNSC held an emergency meeting to discuss North Korea's missile launch. UN Secretary General Moon condemned the launch and called it a "brazen and irresponsible act." France's deputy UN ambassador Alexis Lamek, reportedly said that the council will react quickly and express their opposition to the launch.

The launch violates Security Council's resolutions, which bans ballistic missile tests. He added that all 15 members agreed that they should work to implement the latest sanctions on North Korea. US Ambassador Samantha Power called for urgent and united condemnation of the attacks. She said that North Korea's repeated violation of international law "underscores how important it is for us to come together to ensure consequences for this inherently destabilising behavior, and this inherent and consistent and repeated threat to international peace and security." According to reports, US Defence Secretary Carter that the missiles flew farther than the country's previous attempts and so South Korea, US and Japan need to increase their defences. ...

Source: <http://www.bignewsnetwork.com/>, 23 June 2016.

NUCLEAR ENERGY

UK

The Brexit Effect on UK Nuclear

EDF Energy, NuGeneration and Horizon Nuclear Power have all stressed their commitment to the UK's nuclear new build program, despite the country's decision to leave the European Union. Nevertheless, the majority vote in favour of 'Brexit' – decided in a national referendum 23 June

2016- may have implications for investment in new reactors and nuclear research, as well for the UK's future role in meeting climate change targets, industry participants said.

New Build: EDF Chief Executive Officer Lévy said the UK's decision will have no impact on EDF Energy's strategy to build Hinkley Point C – the first new nuclear power station built in the UK in almost 20 years. Scheduled to begin operating in 2025, the twin-unit UK EPR plant will provide about 7% of the UK's electricity. "As of today, we believe that this vote has no impact on our strategy, and the strategy for our UK subsidiary [EDF Energy] has not changed. Our business strategy is not linked to Great Britain's political affiliation with the European Union, so we have no reason to change it," Lévy said. "I would just point out that in the last few days, spokespeople on energy issues for the Brexit camp – notably Energy Minister Leadsom – have on numerous occasions and again in recent days come out in favour of maintaining the decarbonisation policy, of maintaining the nuclear option, and of maintaining the Hinkley Point project. Therefore there are no consequences from this vote today."

"We operate in the markets like any [other] large company, and we made sure that we did not take a position one way or the other. That means that we are in a neutral position vis-à-vis the movements that could occur in the markets," Lévy continued.... Under a deal agreed last October, China General Nuclear will take a 33.5% stake in EDF Energy's £18 billion (\$28 billion) project to construct the plant. In addition, the two companies will develop projects to build new plants at Sizewell in Suffolk and Bradwell in Essex, the latter using Chinese reactor technology. EDF's share in the project stands at 66.5%, but the company said it intends to offer other investors stakes in the project. However, it plans to retain at least a 50% stake itself. A final investment decision on the Hinkley project is expected in September.

China General Nuclear will take a 33.5% stake in EDF Energy's £18 billion (\$28 billion) project to construct the plant. In addition, the two companies will develop projects to build new plants at Sizewell in Suffolk and Bradwell in Essex, the latter using Chinese reactor technology.

NuGeneration (NuGen), the UK joint venture between Japan's Toshiba and France's Engie, said its Moorside project remains unaffected by the outcome of the EU referendum. NuGen plans to build a nuclear power plant of up to 3.8 GWe gross capacity at the West Cumbria site using AP1000 nuclear reactor technology provided by Westinghouse Electric Company, a group company of Toshiba.

NuGen said 24 June its shareholders "remain committed to taking forward" Europe's biggest new nuclear power station to produce and sell power to the UK grid. "We firmly believe the case for new nuclear power stations for the UK is compelling, and unchanged as a result of the referendum," the company said. It added: "New nuclear power stations are vital for the UK's future prosperity, delivering low-carbon, secure and stably-priced electricity for generations to come, while securing our future indigenous energy supplies on UK soil. NuGen will be in a position to provide power to the UK grid in the mid-2020s. In order to deliver the plant on time and on budget, we must secure clarity on policy and ensure the Government does everything it can to deliver investment stability for vital UK infrastructure projects."

Horizon Nuclear Power said it will continue to develop its plans to deploy the UK Advanced Boiling Water Reactor at two sites – Wylfa Newydd, which is on the Isle of Anglesey, and Oldbury-on-Severn, in South Gloucestershire. Established in 2009 and acquired by Hitachi in November 2012, Horizon aims to provide at least 5.4 GWe of new capacity, expecting the first unit at Wylfa to be operating in the first half of the 2020s.

... Horizon announced in May it had appointed a joint venture responsible for construction of its Wylfa Newydd plant. The newly created company, Menter Newydd, is a joint venture of Hitachi

Nuclear Energy Europe, Bechtel Management Company and JGC Corporation (UK).

New Market Conditions: Reilly, PwC's global head of nuclear capital projects and infrastructure, said the decision to leave the EU "could have a significant impact on our nuclear program". ...

Greatrex, chief executive of the Nuclear Industry Association, stressed the "significant challenges" the UK and the EU face regardless of the referendum result. Greatrex said: "The UK's nuclear industry operates globally, with strong and long-standing business connections, both in Europe and further afield. While the implications of the vote to leave the EU, and subsequent negotiations, will be assessed both by the UK government and European Union, we must not lose sight of the fact that we have significant challenges to replace retiring electricity generation plant, to improve our energy security and to reduce carbon emissions, and that has not changed as a result of the referendum."

"The nuclear industry will work with policymakers here and in the EU to ensure the implications and changes arising from the referendum result are properly understood, and to maintain the confidence in low carbon baseload power and high quality decommissioning which is a vital part of the UK's industrial, engineering and scientific footprint." Grant, director, PwC sustainability and climate change, said the outcome of the referendum was "a major setback for the type of collaboration needed to tackle global environmental issues like climate change". ...

Research Funding: More than 1000 clean-energy exploration jobs may be lost if the UK exits the EU, the head of the country's nuclear research agency has warned. Professor Cowley, CEO of the UK Atomic Energy Authority, told the BBC he was "very concerned" by the implications Brexit would have on funding research programs. Researchers

are afraid, he said, that £55 million in annual European Commission funding would be withdrawn.

The Joint European Torus (JET) investigates the potential of fusion power as a safe, clean, and virtually limitless energy source for future generations. The largest tokamak in the world, it is the only operational fusion experiment capable of producing fusion energy. As a joint venture, JET is collectively used by more than 40 European laboratories. ...

Source: <http://www.world-nuclear-news.org/>, 24 June 2016.

USA

No mo' Diablo? PG&E to Cease Production of Nuclear Power at Plant by 2025

More than 1000 clean-energy exploration jobs may be lost if the UK exits the EU, the head of the country's nuclear research agency has warned. Professor Cowley, CEO of the UK Atomic Energy Authority "very concerned" by the implications Brexit would have on funding research programs.

SLO County residents woke up June 22 to the announcement that Pacific Gas & Electric (PG&E) planned to phase out its production of nuclear power at the Diablo Canyon Nuclear Power Plant by 2025. According to the company's announcement, if all goes as planned, the controversial facility, which has sat perched over the ocean near Avila Beach since the 1980s, will be decommissioned in nine years, when the operation licenses for its two nuclear reactors are set to expire. "As we make this transition, Diablo Canyon's full output will no longer be required," PG&E Corporation Chairman, CEO, and President Earley said in a written statement on the company's website. "As a result, we will not seek to relicense the facility beyond 2025 pending approval of the joint energy proposal."

PG&E partnered with a small group of environmental and labor organizations to create a joint proposal that would replace the power output from Diablo Canyon with a portfolio of greenhouse-gas-free energy sources to meet new changes in California's "energy landscape." The

plant's operation has long been a source of friction and controversy in SLO County, and news of its planned shuttering hasn't changed that. After the shutdown plans were announced, organizations that had long opposed or supported Diablo Canyon's operation were quick to jump in and give their two cents on the issue.

"Parts of this proposal usher in a bold new paradigm for the state's energy future, but for those of us in San Luis Obispo, the proposal also provides an orderly path to phase out the reactors," said Becker, executive director for the Alliance for Nuclear Responsibility, one of the organizations that PG&E partnered with to develop the joint proposal... "The PG&E decision indicates the severe shortcomings in the California and the national regulatory environment," Nelson, the group's government liaison said.

While the two sides will likely continue to argue about the plant as it moves toward a shutdown, SLO County residents and officials are left to wonder just what a future without the plant, which pumps nearly \$1 billion into the local economy on an annual basis and employs roughly 1,500 workers, will look like. According to the joint agreement, PG&E will pay San Luis Obispo County nearly \$50 million to offset declining property taxes through 2025, and includes incentives for retaining employees through 2025.

The nine year lead time will also give SLO County time to brace for the economic impact, which will be felt everywhere from the job market to the county's public schools, which receive millions in funding from PG&E. "People should be concerned about the local impact this plant closure will have on our community," SLO County Administrative Officer Dan Buckshi said in a statement posted to the county's website. "The county has been planning for this possibility for many years and will continue to work with the community to mitigate some of the expected economic impacts."

In the meantime, many of the lengthy regulatory processes that the plant is currently in the midst of will continue to move forward. Those include hearings with California Public Utilities Commission, which must give PG&E its blessing to move forward with the joint agreement. The planned closure of the plant is also contingent on the State Land Commission's approval to extend Diablo Canyon's permit to operate its cooling system, which expires in 2018.

Source: <http://www.newtimeslo.com/>, 22 June 2016.

California to Shoulder \$15 billion Cost for Shutting Down Last Nuclear Plant

Environmentalists' plan to close California's last nuclear power plant and replace it with green energy could end up costing state residents dearly, according to analysts. Replacing Diablo Canyon power plant with solar energy, for example, could cost \$15 billion based on current prices, according to Bloomberg Intelligence. That's on top of the \$3.8 billion that PG&E estimates it will cost to decommission to power plant.

Diablo Canyon provides 9 percent of California's electricity production, and with the state dealing with an already strained grid, shutting down one-tenth of the Golden State's power supply could pose more problems. Environmentalists were still happy. The NRDC was one of two environmental groups that forced PG&E to agree to not extend Diablo Canyon's operating permit when it expires in 2025.

...Environmentalists cheering Diablo Canyon's demise, however, don't seem to care about the high cost energy PG&E will have to use to replace the power plant. As part of its agreement with eco-activists and unions, PG&E will fully shutdown Diablo Canyon by 2025, and replace it with solar power, wind power and energy efficiency programs.

Diablo Canyon provides 9 percent of California's electricity production, and with the state dealing with an already strained grid, shutting down one-tenth of the Golden State's power supply could pose more problems. Environmentalists were still happy. The NRDC was one of two environmental groups that forced PG&E to agree to not extend Diablo Canyon's operating permit when it expires in 2025.

NRDC, like many eco-groups, is opposed to nuclear power over safety concerns, and because it prevents more solar and wind power from being dumped onto the grid. Nuclear power plant output can't easily be turned up and down to accommodate intermittent green energy production. "Energy efficiency has long ago been proven to be the cleanest, cheapest, and fastest energy resource for California," NRDC's Miller wrote... "Building codes and appliance standards ensure that all new homes and appliances get more efficient year after year," he wrote. "Utility programs help customers reduce their demand for electricity and drive the adoption of more efficient equipment, homes, and offices."

PG&E said California's hefty green energy mandate made it harder to operate Diablo Canyon, as did a doubling of state energy efficiency mandates. "California's energy landscape is changing dramatically with energy efficiency, renewables and storage being central to the state's energy policy," PG&E CEO Tony Earley said in a

statement. "As we make this transition, Diablo Canyon's full output will no longer be required." But not all environmentalists are convinced closing Diablo Canyon is a good idea. ...Shellenberger says closing Diablo Canyon is actually a step backward for eco-activists who care about global warming. Nuclear plants don't produce any greenhouse gases, and when they are closed, are most often replaced by natural gas.

"So all the efficiency and renewables the proposal mandates—or vaguely promises—would leave PG&E's energy mix slightly dirtier in 2045 than it was in 2015—no progress at all for 30 years because of Diablo's closure," he wrote. "Despite green groups' claims that nuclear power can be easily replaced by wind, solar and energy efficiency, recently closed plants from Vermont

Yankee to California's San Onofre have been replaced overwhelmingly with fossil-fueled power," he wrote. "With Diablo Canyon, at least they are admitting ahead of time that renewables can't do the job."

Source: <http://dailycaller.com/>, 23 June 2016.

DOE Marks \$82m for Advanced Nuclear Research

Dive Brief:

· The US Department of Energy announced it would be spending more than \$82 million to support advanced nuclear energy research, with 93 projects in 28 states receiving awards that varied from facilities access to crosscutting technology development and infrastructure awards.

· Included in the funding is almost \$36 million for DOE's Nuclear Energy University Program (NEUP) to support 49 university-led nuclear energy research and development projects in 24 states.

· The Department is also awarding \$21 million for six integrated research projects, including a jointly-funded project between the Office of Nuclear Energy and the Office of Environmental Management. Also announced is almost \$7 million to seven research and development projects led by Department of Energy national laboratories, industry and US universities.

Dive Insight: Despite market uncertainty—and the recent spate of nuclear plant closures—the US government continues to support research into smaller, more secure and more advanced nuclear energy. [The] funding announcement indicates DOE is casting a wide net as it looks to boost the country's carbon-free generation. "Nuclear power is our nation's largest source of low-carbon electricity and is a vital component in our efforts to both provide affordable and reliable electricity

Included in the funding is almost \$36 million for DOE's Nuclear Energy University Program (NEUP) to support 49 university-led nuclear energy research and development projects in 24 states. The Department is also awarding \$21 million for six integrated research projects, including a jointly-funded project between the Office of Nuclear Energy and the Office of Environmental Management.

and to combat climate change," Energy Secretary Moniz said in a statement. "These awards will help scientists and engineers as they continue to innovate with advanced nuclear technologies."

In addition to funding for DOE's NEUP initiative, which provides science and engineering students and faculty members opportunities to develop innovative technologies and solutions for civil nuclear capabilities, the agency announced 15 universities will receive nearly \$6 million to research reactor and infrastructure improvements. The DOE's funding is a part of its Gateway for Accelerated Innovation in Nuclear initiative, announced in November, to provide the nuclear energy community with access to technical, regulatory, and financial support.

As part of the funding, DOE made approximately \$2 million available through the Nuclear Science User Facilities (NSUF) to provide access to world-class neutron and gamma irradiation and post-irradiation examination services to General Electric Hitachi. The project will cover the cost of placing selected material samples into a NSUF-affiliated nuclear reactor to analyze the effects of nuclear reactor irradiation on material property changes.

Crosscutting research will also examine: communication methods to demonstrate the ability to transmit greater amounts of data and other signals through physical boundaries in nuclear facilities. And seven projects will be awarded almost \$7 million to develop advanced sensors and instrumentation, advanced manufacturing methods, and materials for multiple nuclear reactor plant and fuel applications. DOE's Office of Nuclear Energy since 2009 has awarded approximately \$464 million to 113 US colleges and universities.

Source: <http://www.utilitydive.com/>, 17 June 2016.

NUCLEAR COOPERATION

FRANCE-UK

Business as Usual for Heysham Power Stations after EU Vote

Heysham Power Stations owner EDF Energy said the UK's vote to leave the EU has no impact on its

nuclear strategy here. The company employs around 1,500 full time employees and contract partners across its two nuclear reactors in Heysham. The company, which is run by the French government, said: "As of today, we believe that this vote has no impact on our strategy, and the strategy for our UK subsidiary has not changed.

"Our business strategy is not linked to Great Britain's political affiliation with the European Union, so we have no reason to change it. "I would just point out that in the last few days, spokespeople on energy issues for the Brexit camp – notably Energy Minister Leadsom – have on numerous occasions and again in recent days come out in favour of maintaining the decarbonisation policy, of maintaining the nuclear option, and of maintaining the Hinkley Point project. Therefore there are no consequences from this vote 24 June.

"We operate in the markets like any large company, and we made sure that we did not take a position one way or the other. That means that we are in a neutral position vis-à-vis the movements that could occur in the markets. "Market analysts believe that the pound will drop, but if the currency falls, the economy becomes more competitive. I think we need to adapt to economic conditions and to exchange rates, which can evolve."

Source: <http://www.lancasterguardian.co.uk/>, 24 June 2016.

INDIA-GHANA

India to Examine Ghana's Civil Nuclear Cooperation Request

India has, in principle, agreed to look into Ghana's request for cooperation in civil nuclear energy field, President Pranab Mukherjee said as he wrapped up his six-day visit to three African countries which he said will "reinvigorate" the already "strong and time-tested" bonds with them.

"Although the details are yet to be worked out, in principle, we have agreed that we will examine civil nuclear cooperation," he said on the question of proposal from Ghana seeking cooperation in the field of civil nuclear energy. The President said, "there are questions of cooperation in technology,

cooperation in the supply of raw material, availability of uranium and also in sharing the experiences because we are also new in the area of the nuclear technology."

... India has also got assurance from Namibia that it will work towards ironing out issues which are hindering the implementation of an agreement with it for supply of uranium for peaceful nuclear energy use, he said. "We have already entered into an agreement with Namibia on supply of uranium. Up to now that has not been done so I requested the President to take special care to meet the commitment of the past President and he agreed and also it was suggested that two technical teams will exchange details as there are various lack of understanding or misunderstanding about the supply of uranium," he said.

Mukherjee said some believe that one has to be member of NSG to supply uranium which is not correct and he pointed that out during bilateral talks with Namibia. "Therefore it is not a new agreement. Agreement has already been signed. Supply of uranium has not taken place that's why I raised this issue and I requested the President to look into it and twice he assured," he said. ...

Source: The Economic Times, 18 June 2016.

RUSSIA-CHINA

Putin: Russia, China to Step Up Nuclear Energy Cooperation

In November, the Russia-China intergovernmental energy cooperation commission was held in the Chinese capital of Beijing. Then, the sides agreed to promote the agreements on civil use of nuclear energy, as well as to expand comprehensive cooperation in the field of nuclear energy.

"We should enhance our cooperation not only in terms of increasing the number of nuclear power plants in China but also by expanding our

scientific and technical collaboration in this area," Putin told the Xinhua news service on the sidelines of the St. Petersburg International Economic Forum (SPIEF).

According to Putin, the two units of China's Tianwan NPP, built in cooperation with Russia and operating for the last eight years, "now have proved reliable." The Tianwan NPP is considered to be the safest in the world by the IAEA. It was constructed using Russian nuclear power equipment and state service export firm Atomstroyexport.

Source: <http://sputniknews.com/business/20160623/1041787562/putin-russia-china-nuclear.html>, 23 June 2016.

URANIUM PRODUCTION

CANADA

Cameco and Areva to Develop Uranium Resources in Athabasca Basin

The Athabasca communities, Cameco and Areva Resources Canada have signed an agreement built on the existing impact management deal established in 1999 to develop uranium resources in Canada's Athabasca Basin. The Ya'Thi Néné (Lands of the North in Dene) agreement will confirm the continued support of communities

The two units of China's Tianwan NPP, built in cooperation with Russia and operating for the last eight years, "now have proved reliable." The Tianwan NPP is considered to be the safest in the world by the IAEA. It was constructed using Russian nuclear power equipment and state service export firm Atomstroyexport.

associated with the Cigar Lake, McClean Lake, as well as Rabbit Lake uranium mining operations. It has been structured on five pillars of workforce development, business development, community engagement, environmental stewardship, and community investment. Cameco president and CEO Gitzel said: "By working with industry, people living in the north have found ways to enhance the capacity and vitality of their communities while protecting their traditional values and lands."

The latest agreement builds on the existing

relationships between Cameco, Areva and the three First Nation communities of Black Lake, Fond du Lac and Hatchet Lake, in addition to the four communities of Stony Rapids, Wollaston Lake, Uranium City and Camsell Portage. Areva Resources Canada president and CEO

Vincent Martin said: "This agreement further solidifies our longstanding collaboration with these communities. "It speaks to our joint vision and commitment to the prosperity of northern Saskatchewan for decades to come."

Under the terms of the agreement, the partners will continue the hiring preference for residents of the Athabasca communities for the Cigar Lake, McClean Lake and Rabbit Lake operations. Preference for community owned businesses will also be continued to meet service requirements for Cameco and Areva operations. As part of the agreement, Cameco and Areva will provide annual production-based payments to a community-administered trust to be used for initiatives that promote the health and wellbeing of residents in the region. The agreement will be in force until the existing Athabasca Basin operations of Cameco and Areva are decommissioned.

As part of the agreement, Cameco and Areva will provide annual production-based payments to a community-administered trust to be used for initiatives that promote the health and wellbeing of residents in the region. The agreement will be in force until the existing Athabasca Basin operations of Cameco and Areva are decommissioned.

that that nuclear materials supplied to the PAEC by Chinese entities have also found their way to North Korea, and that the China Atomic Energy Authority (CAEA) recently received a written complaint that supplies of a Chinese company, Beijing Suntech Technology Co. Ltd, were being diverted to North Korea by the Pakistani authorities.

The Chinese government hushed up the matter as it could have consequences for Beijing's bid to support Pakistan at the NSG. But this information

Pakistan has been giving North Korea equipment which has a direct bearing on producing nuclear weapons. Sources said Beijing Suntech manufactures Vacuum Induction Melting (VIM) furnaces that find application in refining hard metals such as uranium and plutonium, which are used in making nuclear warhead cores. Pakistan is known to have procured these items from China and has passed them along to North Korea.

community to accept its membership to the NSG, said highly placed US sources who track nuclear commerce. These sources said the PAEC has been continuing to supply restricted items like 'Monel' and 'Inconel' material to North Korea in violation of UN sanctions. They added

leaked out of North Korea and came to the knowledge of Western governments who are members of the NSG. In another alarming revelation, informed sources said Pakistan has been giving North Korea equipment which has a direct bearing on producing nuclear weapons. Sources said Beijing Suntech manufactures Vacuum Induction Melting (VIM) furnaces that find

application in refining hard metals such as uranium and plutonium, which are used in making nuclear warhead cores. Pakistan is known to have procured these items from China and has passed them along to North Korea.

When asked if this evidence of Pakistan's illicit nuclear trade with North Korea has been brought to the notice of NSG nations, US sources said all proof and evidence which confirms the violation of sanctions against North Korea and more so the

Source: <http://www.mining-technology.com/>, 23 June 2016.

NUCLEAR PROLIFERATION

PAKISTAN-NORTH KOREA

Pakistan is Selling Nuclear Materials to N Korea and China Knows It

Pakistan is continuing to sell nuclear materials to North Korea, even as its urging the international

ongoing dangerous nuclear trade has been brought to the notice of "those who need to be informed at the NSG level."

Behind the scenes Pakistan is aware that it's nuclear trade with North Korea has been uncovered, but is counting on China to keep the global pressure at bay, said sources.

Giving details of North Korea's nuclear commerce links with Pakistan, informed sources mentioned that two North Korean diplomats Pacific Gas & Electric Choi and Son Pacific Gas & Electric posted in the North Korean Embassy in Tehran visited Pakistan eight times between 2012 and 2015. They were associated With the Korea Mining Development Trading Corporation (KOMID) Pacific Gas & Electric an entity sanctioned several times by the UNSC since 2005 for its involvement in North Korea's WMD programme.

These diplomats met with Pakistani officers involved in the nuclear program. They were tracked and investigated by the Western authorities as yet another proof of Pakistan's continuing nuclear links with North Korea. Based on Western inputs on these links, the UNSC 1718 Committee, which is monitoring the implementation of sanctions against North Korea, sought information from Pakistan in November 2015 regarding the frequent visits of the two North Korean diplomats from Tehran to Islamabad and Karachi.

At first, say informed sources, Pakistan denied it, but when confronted with photographs and other recorded evidence, Pakistan acknowledged that the two North Korean officials under investigation had indeed visited Islamabad and Karachi. Highly placed sources said that the West has so far kept this information under wraps in recognition of Pakistan's value in the war against terror. But now, when Pakistan has gone into overdrive to upset the equilibrium of the NSG, Western nations of

the grouping are saying that Islamabad needs to "look at itself in the mirror " and ask "how can it run with the hare and hunt with the foxes", meaning it can't claim to fulfill the NSG's requirements, and at the same time, sell nuclear weapons materials to North Korea.

Source: <http://timesofindia.indiatimes.com/>, 22 June 2016.

NUCLEAR NON-PROLIFERATION

PAKISTAN

Pakistan's Ex-Envoy Calls for Revamping UN Resolution on Nuclear Proliferation

A head of a Pakistani think-tank on 21 June called for revamping UNSC Resolution 1540 that aims to prevent the proliferation of weapons of mass destruction to non-state actors and said that there is a need to take into account the emerging threats that were destabilising large chunks of the globe. "ISIS must not be allowed to lay its hands on radiological materials or chemical weapons," Khan, a former Pakistani envoy and director general of the Institute of Strategic Studies, Islamabad, said at

formal open consultations at UN Headquarters in New York on the 2016 comprehensive review of implementation of the resolution.

He said, "Resolution 1540, an integral part of non-proliferation regime, needs rejuvenation and renovation, noting that the threat posed by non-state actors was evolving; the nexus between terrorists and violent extremists was becoming stronger and there is growing evidence of terrorists' attempts to acquire weapons of mass destruction." ...He called for commissioning of an authentic study to assess the severity and immediacy of the threat of nuclear and radiological terrorism.

The West has so far kept this information under wraps in recognition of Pakistan's value in the war against terror. But now, when Pakistan has gone into overdrive to upset the equilibrium of the NSG, Western nations of the grouping are saying that Islamabad needs to "look at itself in the mirror " and ask "how can it run with the hare and hunt with the foxes", meaning it can't claim to fulfill the NSG's requirements, and at the same time, sell nuclear weapons materials to North Korea.

He said to deal with the full spectrum of threats, the 1540 regime must work closely with other entities and regimes, especially the NSS process adding that the resolution cannot do it all nor do it alone. Masood also called for streamlining the resolution's accounting, security and export control measures. He said the industry, civil society and academia are now key partners in promoting the 1540 process and preventing non-state actors' access to dual use of technologies adding that they should be brought out of the margins and shadows and integrated into the mainstream.

He further said Pakistan has implemented a comprehensive export control regime since 2004, and its legislative, regulatory, administrative and enforcement measures are at par with the standards followed by the NSG, the MTCR, the Australia Group and the European Union. The emphasis all along has been on robust laws, comprehensive scope, catch all control, barriers against diversion, preparedness and response, and international cooperation, he added.

Masood Khan said, "What is more, Pakistan's Strategic Export Control Division is fully involving industry, academia and civil society to acquire support for the implementation of its export control regime. Our commitment to the success of Resolution 1540 is second to none. Let me add that these credentials make Pakistan eminently eligible to become a member of the Nuclear Suppliers Group."

Source: <http://dailytimes.com.pk/>, 23 June 2016.

NUCLEAR DISARMAMENT

GENERAL

Assistant Secretary Frank A. Rose to Travel to Japan, S.Korea, and China

Assistant Secretary for Arms Control, Verification and Compliance Rose will travel to Japan, the Republic of Korea, and China, from June 27 to July 7, for the third plenary meeting of the International Partnership for Nuclear Disarmament Verification (IPNDV), and for

discussions on space security, strategic stability, arms control, and other bilateral and multilateral issues. From June 28–30, Assistant Secretary Rose will travel to Tokyo, Japan, to co-chair the third IPNDV plenary meeting featuring the participation of over 25 countries. The IPNDV channels expertise from both nuclear and non-nuclear weapon states to address the complex challenges involved in the verification of nuclear disarmament agreements.

On July 1, he will participate in two IPNDV-related public events in Tokyo: a press event in the morning at the Japan National Press Club, and a panel event in the afternoon at the University of Tokyo. From July 2–5, Assistant Secretary Rose will be in Seoul, Republic of Korea, where he will meet with senior officials at the Ministry of Foreign Affairs and at the Blue House to discuss a range of strategic issues. Assistant Secretary

Rose will be in Beijing, China, from July 5–7, for discussions on mutual strategic interests with the Ministry of Foreign Affairs and the China National Space Administration.

Source: <http://www.imperialvalleynews.com/>, 24 June 2016.

KAZAKHSTAN

Kazakh President Urges Reduced Tensions in the World, Nuclear Disarmament

Kazakh President Nursultan Nazarbayev in a recent interview with TASS First Deputy General Director Mikhail Gusman, told:

"First, 26 years ago we made a tough decision to close the Semipalatinsk nuclear test site. Secondly, we made the same difficult choice to abandon a nuclear and missile arsenal that was located in Kazakhstan. I am not going to tell you how many people have suffered; an area equal to Belgium's size was contaminated [with radiation] because of tests at the Semipalatinsk test site and people in the third generation feel the consequences of the exposures. This was a problem [and] we were left alone," said Nazarbayev.

He maintained the trust between nuclear weapon countries has been declining because the world's combined inventory of nuclear warheads remains at a very high level. "There are 15,000 nuclear warheads, of which almost 4,000 warheads are deployed with operational forces. Approximately 93 percent of all nuclear warheads are owned by Russia and the United States, who each have roughly 7,000 warheads in their military stockpiles.

The other countries have the remaining 1,500 nuclear missiles. Weakening confidence causes colour revolutions. As a result, while a state is falling apart it turns into a hotbed of extremism," said the Kazakh leader.

..."This year, we want to commemorate the 25th anniversary of the closure of the Semipalatinsk test site and invite scientists, nuclear physicists and politicians to once again draw the attention of the world community to a very big threat to all humanity. Fifteen thousand nuclear warheads can destroy the entire planet multiple times. Nobody can think about it. We speak of an ecological catastrophe, global warming and so on. I believe that this is a very serious matter and everyone should be concerned with it," said Nazarbayev.

Source: Interviewed by Aiman Turebekova, <http://astanatimes.com/>, 25 June 2016.

NUCLEAR SAFETY

CHINA

Issues at Taishan Nuclear Plant in China's Guangdong Spark Safety Fears

Design flaws in a French-built nuclear reactor currently being tested at a power station on the southern coast of China have sparked safety concerns in neighboring Hong Kong, experts and local media reports said. The US\$8.3 billion

Taishan plant is among the first in the world to use EPR designed by French nuclear firm Areva, which recently sold a majority stake to energy giant Electricite de France (EDF).

Problems with the design of the reactors have emerged during testing, however, and were cited by EDF in a recent recommendation to the UK parliament that it postpone the Chinese-invested Hinkley Point nuclear plant, which had

also planned to use EPR technology.

In a letter to UK lawmakers earlier this month, EDF said there may be "identical flaws" in the Taishan power plant, which lies just 160 km (100 miles) from the densely populated Pearl River Delta region, which includes Hong Kong. Meanwhile, prolonged delays to an EPR reactor at Olkiluoto in Finland have resulted in multibillion-euro litigation between Areva and the Finnish energy group TVO.

While Taishan has already postponed its scheduled opening by one year to 2018 after the discovery of too much carbon in the walls of the reactors, officials are still pushing for the plants to go ahead as planned, campaigners said in Hong Kong. In May, the concrete shells encasing the plant's

two pressure reactors were sealed, according to drone images gathered by Hong Kong's crowd funded investigative news agency FactWire, which means that the EPR units can't be removed or replaced now. The amount of radioactive nuclear fuel stored at the Taishan plant is three times that of Japan's Fukushima nuclear plant, campaigner Albert Lai told the agency.

Lai fears that some 50 million people would be affected in the event of a large-scale nuclear leak, across a 7,000 square km area. "There have been so many trust issues, that a lot of people now believe that quality control at this nuclear power plant is below standard," engineer and sustainability campaigner Albert Lai, who

There are 15,000 nuclear warheads, of which almost 4,000 warheads are deployed with operational forces. Approximately 93 percent of all nuclear warheads are owned by Russia and the United States, who each have roughly 7,000 warheads in their military stockpiles. The other countries have the remaining 1,500 nuclear missiles.

In May, the concrete shells encasing the plant's two pressure reactors were sealed, according to drone images gathered by Hong Kong's crowd funded investigative news agency FactWire, which means that the EPR units can't be removed or replaced now. The amount of radioactive nuclear fuel stored at the Taishan plant is three times that of Japan's Fukushima nuclear plant, campaigner Albert Lai told the agency.

convenes the Hong Kong think tank Professional Commons, told RFA. "What's more, the problems are much more serious than we thought they were," he said, citing a scandal over the falsification of parts forged at Areva's Le Creusot facility that potentially put safety checks at risk.

He said that while majority shareholder China General Nuclear Power is doing everything it can to reassure the public and press ahead with the project, the level of overall transparency is still very low. "We still haven't heard anything directly from the two independent nuclear safety regulators [in France and China]," Lai said. "This doesn't really do anything at all to boost public confidence [in Taishan] ... and from the point of view of the general public, we don't see any evidence at all of independent regulation," he said.

China General Nuclear has already postponed the opening of Taishan Unit 1 and Taishan Unit 2 to the first and second half of 2017 respectively, but FactWire reported, citing French engineers, that Unit 1 still required a large amount of tests, and the earliest it could start was 2018. Scott Chiang, chairman of the pan-democratic political party New Macau Association, said many in the former Portuguese enclave are also worried, as the Taishan plant lies just 60 km from their homes. ...

Source: <http://www.rfa.org/english/news/china/china-nuclear-06232016125814.html>, 23 June 2016.

THAILAND

Thailand's Nuclear Plans Inch Forward with New Bill

Advocates of nuclear energy in Thailand, like their counterparts around the world, were given pause when a massive earthquake and tsunami in Japan five years ago triggered a series of meltdowns at the Fukushima Daiichi nuclear power plant – the worst such accident since Chernobyl in 1986. Following the Fukushima disaster in March 2011, Thailand's power development plan, which maps out its future energy sources, was almost immediately revised, with the schedule for the country's first nuclear power plant to become

operational pushed back from 2020 to 2023.

That date has since been further postponed; the current national power plan, approved in May last year, forecasts that two nuclear power plants will be meeting up to 5% of Thailand's electricity needs by 2036. But while plans for domestic nuclear energy capacity remain ill-defined, several developments in recent months, including the passage of new nuclear-related legislation, have brought the issue back into focus. The Nuclear Energy for Peace Act, passed by Thailand's military-appointed National Legislative Assembly in May, sets out regulations for the management of nuclear-related activities and radioactive materials.

Tara Buakamsri, Thailand country director for environmental group Greenpeace, described the law as a "first step" in a protracted process to establish the country's first nuclear power plant – a project observers have indicated could take up to 10 years. The bill mandates the establishment of a new body, the Nuclear Energy for Peace Commission, to oversee nuclear energy policy and procedures; monitor compliance with the act; and advise on nuclear safety, among other duties. The commission will be chaired by PM Chan-ocha.

Under the bill, entities wishing to establish nuclear facilities, including nuclear power plants, will enter a "step-by-step" licensing process, "starting from a site license, a construction license, an operating license, and ending with a decommissioning license," according to an email from the Office of Atoms for Peace, Thailand's chief authority for nuclear research, whose members were involved in drafting the law.

Describing the bill as "much more stringent than the old law," the office said it complied with major international instruments, including the Convention on Nuclear Safety and the CPPNM, both of which Thailand is not yet party to. "The purpose of this law is to protect the public from harmful effects of radiation exposure by regulating all the activities involving nuclear energy for peaceful purposes," the office said. "The Act puts OAP on [the] right path to

Under the bill, entities wishing to establish nuclear facilities, including nuclear power plants, will enter a "step-by-step" licensing process, "starting from a site license, a construction license, an operating license, and ending with a decommissioning license."

comprehensively regulate nuclear facilities, including a nuclear power plant. However, many regulations need to be developed in the near future to support the Act."

Public Opinion: Meanwhile, Thai energy officials have continued efforts to promote public awareness of nuclear power, a prospect first mooted here in the 1960s.

Members of the state-run Electricity Generating Authority of Thailand have visited potential candidate sites this year and education programs on nuclear power are ongoing in universities, schools and communities, an official from the state body confirmed. Munchuwong, head of the nuclear safety section at EGAT, would not comment on specific potential locations for future nuclear power plants in Thailand. He was, however, more forthcoming on local communities' views on nuclear energy.

"The response is not good," he said of recent consultation efforts. "They think that nuclear power is very dangerous. They think that renewable energy [sources] are enough for Thailand [but] they don't know about the limits of renewable energy." He added: "We have to keep on going to educate the people about electricity generation and nuclear power. I think after they have the knowledge, their attitude will be better."

The proposed construction of two 1,000 megawatt capacity nuclear power plants in Thailand is in line with the government's stated desire to diversify energy sources and reduce dependence on natural gas. Natural gas accounted for 64% of Thailand's power generation in 2014 and the country's latest power plan envisions cutting this share to 30-40% by 2036. The utilization of coal, imported hydropower and renewable energy sources are all forecast to increase.

Echoing the arguments of many nuclear energy proponents, Laoharajanaphand, vice-president of the Nuclear Society of Thailand, contends that the

nuclear option is reliable, affordable and clean. "Nuclear power plants, compared to other technology, produce clean [energy]. [They] don't generate carbon dioxide, so what we are trying to do is educate the Thai people about the usefulness of nuclear technology," she told the Nikkei Asian Review. "Nuclear [power] is not something scary."

Safety Concerns: But activists such as Greenpeace's Buakamsri raise numerous concerns, from the country's lack of expertise in the nuclear field to the financial costs of construction and questions over storing spent fuel and ensuring effective safeguards. "When it comes to safety or security issues with nuclear power plants, the government says: 'okay, Thailand has no natural disasters, we don't have earthquakes like in Japan or other parts of the world.' But in fact we [still] have to take into account extreme weather events," Tara told the NAR. "I don't think the nuclear power plan right now takes that into account in a comprehensive manner."

Several other countries in Southeast Asia are considering the efficacy of nuclear energy, with Vietnam the most advanced down that path.

Despite delays, construction on the country's first nuclear power plant is due to begin in 2020, in cooperation with Russian state-owned nuclear firm Rosatom. Rosatom, which has been actively promoting the region's potential to harness nuclear power, concluded a memorandum of understanding to cooperate on the peaceful use of nuclear energy with the Thailand Institute of Nuclear Technology in September 2014. The firm has similar agreements with other members of the Association of Southeast Asian Nations including Myanmar, Cambodia, Indonesia and Laos.

Despite delays, construction on the country's first nuclear power plant is due to begin in 2020, in cooperation with Russian state-owned nuclear firm Rosatom. Rosatom, which has been actively promoting the region's potential to harness nuclear power, concluded a memorandum of understanding to cooperate on the peaceful use of nuclear energy with the Thailand Institute of Nuclear Technology in September 2014. The firm has similar agreements with other members of the Association of Southeast

Asian Nations including Myanmar, Cambodia, Indonesia and Laos.

Simonov, Rosatom's director for Asia, argued that countries such as Thailand would benefit from the "stable, predictable price" of electricity generated

from nuclear power. "In our opinion, nuclear energy can have its own niche in the national energy mix, providing carbon-free base load generation, which is an important condition for sustainable development," Simonov told the NAR by email. He added that other benefits such as job creation in the construction phase would have "a massive cumulative effect for the economy."

Simonov admitted that in Southeast Asia, as elsewhere around the world, "the safety of nuclear technology is always a matter of discussion, especially in light of the region's vulnerability to natural hazards." However, he added, Rosatom's latest reactor technology was increasingly resilient. "For example, if the reactor we recently launched in India at the Kudankulam NPP, was on the site of the Fukushima NPP, then such [an] accident would have never happened," he said.

For Thailand's nuclear lobby, another significant development toward its own progress was the signing in December 2015 of a joint venture involving local company Ratchaburi Electricity Generating Holding, in partnership with China General Nuclear and Guangxi Investment Group, to construct and operate the second phase of a nuclear power plant in China's Guangxi province. According to the Thai company, of which EGAT owns a 45% stake, the agreement on development of the Fangchenggang Nuclear Power Project will enable Thai technicians to gain expertise on nuclear power plant technology.... With experience of the industry thus set to increase, it appears that perhaps the biggest obstacle remains convincing a highly skeptical public.

Source: <http://asia.nikkei.com/>, 20 June 2016.

UK

Traces of Radioactive Material Found At Seaside Beauty Spot Near Decommissioned Nuclear Site

A seaside paradise in Suffolk is now the centre of a nuclear leak scare after traces of deadly radioactive materials were found on the beach. The contamination on the idyllic Southwold beach is feared to be linked to the Sizewell A nuclear

plant, which is located on coast not far from the popular seaside spot. The nuclear factory is in the process of being decommissioned at a cost of £1.2 billion after shutting down ten years ago. The coastal spot is nicknamed Hampstead-on-Sea because of the all the celebrities who flock there for the holidays.

A seaside paradise in Suffolk is now the centre of a nuclear leak scare after traces of deadly radioactive materials were found on the beach. The contamination on the idyllic Southwold beach is feared to be linked to the Sizewell A nuclear plant, which is located on coast not far from the popular seaside spot. The nuclear factory is in the process of being decommissioned at a cost of £1.2 billion after shutting down ten years ago.

...Alarmingly, Southwold is the second Suffolk beach to be hit by the contamination in just two months. In April, scientists monitoring the area around Sizewell revealed that a 'small amount' of an particularly dangerous and 'unusual' radioactive isotope had been found at Aldeburgh,

eighteen miles from Southwold.

Source: www.thesun.co.uk, 17 June 2016.

USA

Maloney Calls for IP 2 to Shut Down Again Until Cause of Bolt Failure is Determined

Congressman Maloney 20 June called for the NRC to shut down the Indian Point Unit 2 nuclear power plant until it is definitively determined what caused a number of baffle bolts to fail. Speaking in Buchanan, home of the power plant, he also called on a safety review of those bolts in the Unit 3 power plant. "When it comes to nuclear safety, the rule is – if you don't know, don't. We need to make safety our top priority and unless and until we understand the root causes of the baffle bolts failing at Unit 2, we should not be restarting that unit and I have called on the NRC to immediately shut down the unit again and find out the root cause," he said. "We must make safety our top priority."

"We know that bolts wear out over time; that is why we planned these inspections well in advance. We proactively identified and fixed the issue," Indian Point spokesman Jerry Nappi said. When Entergy restarted Unit 2, it said the inspection and replacement of the bolts were successful and that the NRC said there were no safety concerns. It also said it would be inspecting the bolts in Unit 3 early next year.

Source: <http://www.midhudsonnews.com/>, 20 June 2016.

NUCLEAR WASTE MANAGEMENT

USA

Safety Concerns Voiced Over San Onofre Nuclear Waste Plan

The San Onofre nuclear plant has been closed for three years now, but the debate remains active over what to do with the plant's spent nuclear waste. Southern California Edison announced in June 2013 the plant, located south of San Clemente, would be shut down after damage was found in its reactors. While nuclear waste is a federal responsibility, the Department of Energy has not yet found a permanent site to store the plant's waste, so in the interim it is being stored at several locations, including at San Onofre.

The San Onofre nuclear plant has been closed for three years now, but the debate remains active over what to do with the plant's spent nuclear waste. Southern California Edison announced in June 2013 the plant, located south of San Clemente, would be shut down after damage was found in its reactors. While nuclear waste is a federal responsibility, the Department of Energy has not yet found a permanent site to store the plant's waste, so in the interim it is being stored at several locations, including at San Onofre.

Until a permanent location is found, SoCal Edison has contracted with a New Jersey-based company, Holtec, to build a partially underground system using a combination of steel canisters and layers of concrete to hold the spent fuel. Edison expects

to have it all moved to dry storage by 2019. At a community meeting held 22 June in San Juan Capistrano, residents and environmentalists expressed concerns about the safety of building bunkers to store nuclear waste in an area subject to seismic activity, tsunamis and other hazards.

"When you have it in a seismic area, in a possible tsunami area, you have 140,000 cars a day on the freeway, is that really the best place to store spent nuclear fuel?" said Garry Brown, founder of Orange County Coastkeeper. He added that if the material is embedded deeply in concrete, it will be difficult to inspect. But Edison officials said the waste would be stored very securely in a underground system similar to how it has been stored aboveground on the site in the past. The company said

the waste would be subject to visual inspections, radiation and contamination surveys and continual monitoring by security cameras.

Source: <http://abc7.com/>, 23 June 2016.



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).

Centre for Air Power Studies

P-284

Arjan Path, Subroto Park,

New Delhi - 110010

Tel.: +91 - 11 - 25699131/32

Fax: +91 - 11 - 25682533

Email: capsnetdroff@gmail.com

Website: www.capsindia.org

Edited by: Director General, CAPS

Editorial Team: Hina Pandey, Arjun Subramanian P, Chandra Rekha, Manisha Chaurasiya, Deep Jyoti Barman

Composed by: CAPS

Disclaimer: Information and data included in this newsletter is for educational non-commercial purposes only and has been carefully adapted, excerpted or edited from sources deemed reliable and accurate at the time of preparation. The Centre does not accept any liability for error therein. All copyrighted material belongs to respective owners and is provided only for purposes of wider dissemination.