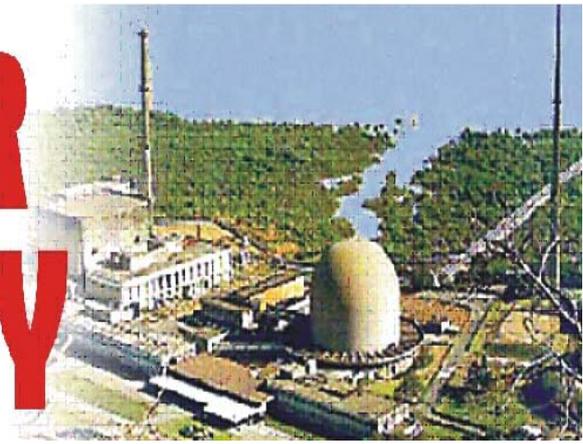


NUCLEAR SECURITY



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

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STATEMENT – RK Sinha, Chairman, AEC

Nuke Power Important for India's Energy Security

Following the Fukushima-Daiichi (F-D) accident in Japan, the two very important considerations for nuclear power, namely, nuclear safety and radiological safety, have occupied centre stage in many a forum. In India, the utility (NPCIL), and the regulatory agency, AERB, independently conducted extensive safety reviews, pursuant to which necessary measures to further augment safety of our operating NPPs, under extreme external events, have been taken. India will continue to contribute to the IAEA efforts in enhancing international cooperation in nuclear safety matters, especially through the various activities under the IAEA Action Plan for Nuclear Safety.

I wish to draw attention to the WHO report released in February 2013 on the studies carried out on the health risk assessment, and which is based on preliminary radiation dose estimation in the areas affected by the release of radioactivity from the Fukushima-Daiichi reactors. To avoid an under-estimation of risks, the WHO Expert Group adopted the Linear-No-Threshold (LNT) model in their assessment and they also made certain assumptions, which reflect a high degree of conservatism. In spite of this conservative approach, the WHO Report concludes that the possible impact of Fukushima accident on the health of the population in the affected regions is practically insignificant.

More recently, following the 60th Session of the Vienna-based United Nations Scientific Committee on the Effect of Atomic Radiation (UNSCEAR) held in the last week of May 2013, there was a press release from the UN Information Service. It cites the conclusion of the Session: "Radiation exposure following the nuclear accident at Fukushima-Daiichi did not cause any immediate health effects. It is unlikely to be able to attribute any health effects in the future among the general public and the vast majority of workers". It is further reported there, that, "On the whole, the exposure of the Japanese population was

low, or very low, leading to correspondingly low risks of health effects in later life".

The final report of UNSCEAR to be submitted to the UNGA later this year may further help allay the public concerns. In this context, it may be reiterated that it is absolutely essential that the extremely large margins of safety, inherent in the prescribed permissible

radiation dose limits, are adequately explained to members of the public, as well as to decision makers. I am sure, as an outcome of these and other ongoing studies, a more rational, science-based criteria for post-accident evaluation, and restrictions on land use in contaminated areas, will emerge.

The above-mentioned international findings go to also endorse the view that India articulated at the IAEA General Conference in September 2012, when we said that 'it is essential to project credible and authentic scientific information on the effects of

nuclear radiation on human health to dispel misconceptions about nuclear power'. Coming from international peer groups, the WHO and UNSCEAR findings would be extremely important to policy makers and other stakeholders, including the IAEA and this Conference. The Conference may give careful consideration to these findings, even as we all need to continue to attach the highest importance to nuclear and radiological safety.

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The Prime Minister of India said during an event in January 2013, "As we pursue our national growth objectives to meet the rising aspirations of our people, the supply of affordable clean energy will be one of our foremost national challenges and a key priority for our government. Nuclear energy will remain an essential and increasingly important element of our energy mix. We are in the process of expanding our indigenous nuclear power programme." He also reiterated that 'we will continue to ensure that nuclear power remains wholly safe'.

India's continued progress in the industrial front, as well as in enhancing the quality of life of its very large population, depends strongly on assured and sustainable growth in the installed power generation capacity and adequate power availability on the grid at all times, in every part of the vast country. The constraint of depleting reserves of fossil fuels, leave alone the sheer enormity of the quantities of coal required, taken along with the need to shift to low carbon energy sources for addressing the global warming related concerns, would drive the options that could meet the Indian energy needs in future. It is here, that nuclear energy becomes a very important option.

There is no shift in the policy on nuclear power in India that is based on the utilisation of India's nuclear resources of modest uranium and abundant thorium, through the closed fuel cycle option, and the 3-stage programme, aimed at largescale deployment of Thorium in the long-term. With regard to current nuclear power projects, the construction of four indigenously designed 700 MWe PHWRs, two each at existing sites of Kakrapar in Gujarat and Rawatbhata in Rajasthan, is in progress. In addition, sixteen more PHWRs of 700 MWe capacity will be progressively taken up for construction (twin units or quadruple units) at five different inland sites already identified.

India is also planning to set up PWRs of indigenous design by mid 2020s. Thanks to the long-standing nuclear co-operation between India and the Russian Federation (the erstwhile USSR), two LWRs of Russian design, each of 1000 MWe capacity, are currently being set up in Koodankulam. ... The 2nd unit is envisaged to follow suit about six months thereafter. Under the international civil

nuclear co-operation agreement, additional options for expanding installed capacity through import of Light Water Reactors have been envisaged, and related discussions are underway with identified vendors, for setting up these reactors at designated coastal sites, including Koodankulam. The first commercial fast breeder reactor of India – PFBR of 500 MWe capacity – is at an advanced stage of completion of construction at Kalpakkam. All the major equipment of PFBR have been erected and the loading of dummy fuel bundles at peripheral locations is in progress. Indigenously developed mixed oxide type fuel pins for the first core of the PFBR are under manufacture and progressive delivery.

The safety of NPPs in India is regulated by the AERB. The regulatory practices followed and the standards developed by AERB are in line with IAEA Safety Standards and international best practices. With over three decades of experience and established plan for augmentation of regulatory resources, AERB will be able to meet the future regulatory demands for reactors based on several different designs and technologies, and their associated fuel cycle facilities.

The IAEA Operational Safety Review Team (OSART) Mission for review of Rajasthan Atomic Power Station 3&4 took place from October 29 to November 14, 2012. The OSART Mission team reported a series of good practices and made recommendations and suggestions to further reinforce safety practices. The Indian Government has decided to declassify the report of the OSART mission. India, as one of the leaders

in nuclear technology, remains committed to the highest levels of safety in its NPPs and in the associated fuel cycle facilities.

Energy is one of the main drivers for the growth of human civilisation and it is imperative to achieve sustainable means to meet the developmental aspirations of the global mankind, without affecting the environment. Nuclear energy is an important component of an energy mix for sustainable long-term energy security. The IAEA – INPRO projection of the growth of nuclear energy cites an installed nuclear capacity of 1250 GWe (moderate growth) and 1875 GWe (high growth) by 2050. In order to facilitate the enhancement of the global reach of nuclear energy, while

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at the same time addressing the proliferation concerns, judicious choice of 'safeguards-friendly technological options of fuel cycle and advanced reactor technologies' would become increasingly necessary. In this context, the utilisation of thorium based fuel cycle offers attractive pathways. It is heartening to note that the fourth and final Panel Session of this Conference is devoted to the topic, 'Drivers for deployment of sustainable and innovative technology', and which includes due emphasis on thorium utilisation among the topics to be discussed.

To conclude, let us remind ourselves that the nuclear power era is nearly 60 years old, and that the current global nuclear competencies are capable of meeting the challenges to expand the nuclear power horizon for the greater benefit of the mankind.

Source: <http://newindianexpress.com>, 13 July 2013.

OPINION – Manpreet Sethi

India's Nuclear Doctrine and Capability: Some Answers

It has been fifteen years since India conducted five nuclear tests. This period has been spent operationalising the country's nuclear doctrine in order to establish credible deterrence. This has meant building certain capabilities to address the country's threat perceptions. The most evident of these have been the testing in 2012 of Agni V, a ballistic missile of the range of 5000 kms, and the launch in 2009 of INS Arihant, the nuclear submarine.

Both these capabilities are still some distance from being inducted into operational service. Comments, however, have appeared (such as in *Daily Star* of June 9, 2013) expressing apprehensions over what the capability would mean for "small nations like Bangladesh in the Asia Pacific," or that through these India is looking for "great power status" which it might then be tempted to abuse.

These questions arise from an inadequate understanding of India's nuclear doctrine and the role that the country envisages for its NWs. India entrusts its NWs with the narrow task of deterring the threat of use or use of NWs. Deterrence is based on communicating the message that any nuclear use against India would invoke massive retaliation since India eschews first use of the weapon. It is also clearly stated that India would not use or threaten

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Not all nuclear-armed states so clearly define the purpose of their NW or the circumstances of their use. But, India has been transparent by placing a written doctrine in the public domain. Encapsulating the philosophy behind the nation's nuclear strategy, it provides pointers on the nature and size of the nuclear arsenal, including delivery vehicles, the kind of command and control systems, and the type of retaliation and targeting options.

Another unique aspect of India's nuclear doctrine is that while operationalising nuclear deterrence, it nevertheless identifies "global, verifiable and non-discriminatory nuclear disarmament" as a "national security objective." This is not rhetorical. India believes that its national interest best lies in a world without NWs. Until such a world emerges, however, nuclear deterrence becomes necessary to safeguard the nation against nuclear coercion or blackmail. Rejection of the concept of nuclear war fighting and the need of the weapon purely for defence allows India to

accept credible minimum deterrence (CMD) and NFU as the defining principles of its doctrine. Both these need to be examined in some detail to understand why India is building the capability it is.

CMD mandates a capability that remains at the minimum level and yet credibly signals that nuclear use against India would invoke retaliation that would be punishing enough for the aggressor to negate any gains he makes through first use. It is a strategy that deters by the promise of punishment, and

punishing modern urban conglomerates does not require a huge arsenal. Therefore, India's focus has not been on increasing nuclear warheads, but on developing delivery systems of requisite ranges, accuracy and reliability that can reach targets whose loss would be unacceptable to the aggressor. The continued testing of missiles, including Agni V, is with this objective in view.

The second pillar of India's nuclear strategy is NFU or a retaliation only posture. Since India does not intend using the NW for coercion or territorial ambitions, it refuses to carry the burden of first use. Rather, it maintains deterrence by conveying that while India will not use the weapon first, in case the adversary does so, India would respond to inflict punishment. This approach reinforces CMD since it does not require India to build a large force

capable of fighting with NWs. Nor is it necessary to keep forces on hair trigger alert with an elaborate and edgy delegated command and control system – capabilities that are prone to accidental or unauthorised use. The NFU, therefore, contributes to stability by steering clear of nuclear brinkmanship.

NFU, premised as it is on the promise of assured punitive retaliation, requires a capability that can survive a first attack sufficiently to retaliate. Dispersal of the nuclear arsenal over a triad becomes essential in this context. And hence the need for nuclear powered submarines equipped with nuclear tipped missiles with sufficient ranges. Evidently, the capabilities that India is currently developing are in keeping with its nuclear doctrine, which has not only been in the public domain since 1999, but which also clearly defines a very constricted role for its NWs – the narrowest, in fact, amongst all nuclear armed states. These capabilities are being built to establish credible deterrence within the self imposed constraint of CMD and to fulfill the requirements of NFU, and not because others are developing the same or other capabilities.

Perhaps the best evidence of the fact that India is in no arms race is evident in its response to Pakistan's acquisition of TNWs – a development that has evoked no change in India's nuclear force structure because its doctrine rejects the idea of nuclear war fighting. Obviously, there is nothing sanguine about NWs. Yet, compelled to build a nuclear arsenal, India has nevertheless opted for least destabilising options. An understanding of its doctrine and the narrow role it envisages for the weapon should set at rest many of the questions and fears of non-nuclear states in the region.

Source: The writer is ICSSR Senior Fellow affiliated to the Centre for Air Power Studies, New Delhi. <http://www.thedailystar.net>, 02 July 2013.

OPINION – Daryl G. Kimball

Hitting the Re-START Button

At their meeting at the G8 summit in Northern Ireland and in a speech in Berlin in June, US President Barack Obama suggested to President Vladimir Putin that the US and Russia should reduce their

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Today, the chance of a bolt-from-the-blue nuclear attack is near zero, but it is certain that a counter-strike involving 100 or so NWs would kill tens of millions almost instantly and more in the following weeks and months. A reduction to 1,000 deployed strategic nuclear warheads each is in the best interests of both the US and Russia.

nuclear arsenals by one-third from the ceilings set by the 2010 New START agreement and achieve "bold reductions in US and Russian tactical weapons in Europe."

Further reciprocal cuts in the two nations' still-bloated Cold War nuclear stockpiles are in order. Three years since New START was completed, each country possesses more than enough nuclear firepower to deter any Russian or US nuclear adversary. Today, the chance of a bolt-from-the-blue nuclear attack is

near zero, but it is certain that a counter-strike involving 100 or so NWs would kill tens of millions almost instantly and more in the following weeks and months. A reduction to 1,000 deployed strategic nuclear warheads each is in the best interests of both the US and Russia.

So far, however, Putin and other senior officials have responded coolly to Obama's proposals, offering a long list of preconditions and concerns. Deputy Foreign Minister Sergei Rybakov said Moscow would "carefully" analyze the US proposal on the basis of at least several factors that affect the balance of deterrence. Adjustments to nuclear and military postures certainly require careful consideration, but it is already clear that maintaining the status quo is not in the strategic interests of Moscow or Washington.

Russian officials say they want further US-Russian reductions to be "reviewed in a multilateral format" because ... reductions beyond New START will make nuclear arsenals of the US and Russia comparable to those of other countries with NWs. This is an overstatement. Today, the US and Russia possess more than 90 percent of the world's NWs and have far more capable delivery systems than their potential adversaries. Russia currently has 1,480 deployed warheads on some 492 strategic launchers, while the US has 1,654 deployed warheads on 792 strategic launchers. New START allows each side to deploy 1,550 nuclear warheads on 700 strategic missiles, submarines and bombers until the year 2021. Each side has thousands more TNWs and strategic warheads in reserve.

By comparison, China has 50-75 warheads on its land-based, long-range ballistic missiles and a total arsenal of some 240 NWs. France deploys less than 300 strategic NWs and Britain less than 160. India,

Pakistan and Israel each have around 100 NWs, on short- and medium-range delivery systems. Russia's strategic warhead and delivery system deployments are already below the New START ceilings, and Russia is spending heavily to build new strategic missiles to keep pace with the US. Meanwhile, the US retains a significantly greater capacity to upload stored warheads on its larger missile and bomber force.

A one-third reduction in both the US and Russian strategic nuclear arsenals would ensure that both countries have roughly equivalent strategic arsenals and would help reduce the enormous financial costs of planned strategic force modernization by both countries. Without another round of negotiated reductions, Russia will be hard pressed to maintain numerical parity with the US in the coming years.

Reductions to 1,000 or fewer Russian and US deployed strategic warheads would still give both countries a huge numerical advantage over other nuclear-armed nations but would also put serious pressure on China and the others to cap their nuclear programs and contribute to the nuclear disarmament process. Russia continues to insist that further offensive nuclear reductions also depend on a resolution to its concerns about future US strategic missile defense plans. This is reasonable, of course, but Russia must be more realistic about US missile defense capabilities, which are far more limited than some Russian military planners fear.

With the Pentagon's recent decision to terminate its Phase Four missile interceptor program in Europe, there is no US missile interceptor capability in place or under development that is capable of downing Russia's advanced strategic missiles. US ground-based strategic interceptors in Alaska and California are limited in number – currently 30 and potentially 44 by 2017 – and are not capable of defeating Russia's ballistic missiles equipped with decoys and other countermeasures. Due to technical constraints, US strategic missile defenses will only have a limited capability against a small number of unsophisticated, long-range missiles, which Iran or North Korea might eventually build in the future.

In April, Obama proposed a legally binding -Russian-US agreement for the regular exchange of information on missile defense programs, which could help Russia verify

US claims about its limited missile defense capabilities. Such an agreement, accompanied by a joint presidential statement reaffirming that the two countries' missile interceptor programs do not threaten each other's security, could go a long way toward addressing Russia's concerns – at least for the next 15 years.

...For many years, Russian officials have said they won't consider limits on their stockpile of some 2,000 TNWs until the remaining 180 US tactical nuclear bombs stored in bunkers in five European NATO countries are removed and their storage sites dismantled. For its part, the US and NATO have said they are "prepared to consider further reducing its requirement for non-strategic NWs assigned to the alliance in the context of reciprocal steps by Russia."

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...About half of Russia's tactical nuclear warheads are assigned to obsolete air-defense and naval systems and can be eliminated. Russia can also easily provide verifiable assurances that its remaining tactical warheads are in central locations away from its western border. Meanwhile, the US could begin the process of removing its tactical bombs from Europe. Such steps would reduce the salience of battlefield NWs worldwide and improve prospects in other areas of European security and arms control.

Although each country faces unique security challenges, the massive nuclear arsenals that Russia and the US have inherited from the Cold War are poorly suited for today's threats, including terrorism, cyber attack and proliferation prevention.

By working with the US on further strategic nuclear reductions, sensible limits on TNWs and new arrangements on missile defense, Russia can maintain strategic stability. In addition, both countries can meet their NPT commitments on disarmament and can put pressure on other nuclear-armed states to exercise restraint. Putin and Obama should direct their diplomats to work out a framework agreement in time for the scheduled US-Russian summit in Moscow Sept 3-4, ahead of the G20 summit in St. Petersburg on Sept 5-6.

Source: Author is Executive Director of Arms Control Association based in Washington. <http://www.themoscowtimes.com/>, 03 July 2013.

OPINION – Zachary Keck

Why Countries Build Nuclear Weapons in the 21st Century?

Throughout the nuclear era, the conventional wisdom has been that one state's nuclear acquisition has driven its adversaries to follow suit. As former Secretary of State George Shultz so eloquently put it, "proliferation begets proliferation." Although some of the earliest nuclear proliferation cases followed this pattern, it has been increasingly rare as the taboo against the first use of NWs has become more entrenched. Instead, the primary security factor driving NWs proliferation today is the disparity in conventional military power. This is likely to continue in the future, with profound consequences for which states do and don't seek NWs. Although conventional military power's importance in nuclear proliferation has certainly increased in recent decades, it wasn't completely negligible in earlier years. France's pursuit of a NW is a case in point. The historical narrative on France's nuclear program has been that it was motivated by Charles De Gaulle's intense nationalism and lack of faith in extended deterrence.

... Israel's decision to pursue the bomb was also motivated almost entirely by its perceived conventional inferiority vis-à-vis its Arab neighbors. Although these neighbors did not possess NWs, Israeli leaders in the late 1950s and 1960s could not be optimistic about the military balance both then and into the future. After all, Egypt alone is 55 times larger than Israel and, in 1967, had about eleven times its population. Israeli leaders therefore calculated that acquiring a NW was the surest way to negate this inherent conventional imbalance, and thereby ensure the Jewish state's survival.

As the nuclear taboo has become more entrenched over the decades, states have had less to fear from a neighbor acquiring an atomic weapon. Consequentially, conventional military power has surpassed nuclear arsenals in terms of its importance in driving nuclear proliferation. North Korea illustrates this nicely. Although Pyongyang began its nuclear program during the Cold War, it only started making substantial progress in the late 1980s and early 1990s. Notably, this was when the nuclear threat it faced was declining as the US withdrew its NWs from South Korea.

By contrast, it was also the time when North Korea had the most to fear from the conventional military balance on the Peninsula. Not only had it lost its great power protectorate in the Soviet Union, but South Korea's economic ascendancy, combined with its inherent demographic advantage, meant that Pyongyang's military position was growing precarious even if America was not part of the equation.

Of course, the US military is part of the equation on the Korean Peninsula, and its stunning victory in the first Gulf War left little doubt about its conventional dominance in the post-Cold War era. Subsequent years have confirmed this dominance, as well as the United States' willingness to use it to overthrow adversarial governments. This was ominous indeed for policymakers in Pyongyang, who rightly calculated that they couldn't match America's conventional military might. Consequently, they sought to negate its military superiority by acquiring the ultimate deterrent.

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The Islamic Republic of Iran's nuclear program has followed a similar trajectory. Although the initial decision to restart the Shah's nuclear program was motivated almost entirely by Saddam Hussein's nuclear and chemical weapons programs, Tehran only began making real

progress on the nuclear front in the middle to late 1990s. Saddam Hussein can hardly explain this trajectory, given that his threat to Iran was significantly diminished following the first Gulf War, and it was eliminated entirely after 2003.

Iran's nuclear program is better explained, then, by the rise in the potential conventional threat the US poses to Iran. In the post-Cold War era, this began in full force when the US decided to reactivate the 5th Fleet in July 1995, after a 45-year hiatus. Suddenly, US Naval might was permanently stationed on Iranian shores. Further underscoring this danger to Iran, the following year President Bill Clinton signed the Iran and Libya Sanctions Act of 1996, confirming that President Rafsanjani's outreach to the US had failed. The US threat to Iran has only grown more precarious since 2003; not surprisingly, Iran's nuclear program has made its greatest advances during this time.

The conventional military balance's primacy in influencing horizontal nuclear proliferation is also evident from the

states that have not chosen to go nuclear. For instance, no Northeast Asian country went nuclear following China or North Korea's nuclear tests, nor did Israel's nuclear arsenal cause a nuclear arms race in the Middle East. The fact that conventional military power is the strongest factor driving nuclear proliferation should guide how we think about proliferation threats in the future. For instance, if Iran acquires nuclear weapons, its neighbors will be unlikely to follow suit. Not only do these states lack the necessary technical capacity, but they have little to fear from Iran's nearly non-existent power projection capabilities.

On the other hand, the rise in China's conventional military strength makes it likely that Eastern Asia will be the region where the most potent proliferation risks emanate from. Countries with territorial disputes with China – first and foremost, Japan – will have the strongest motivation to build the bomb. Unfortunately, for non-proliferation advocates, many of China's neighbours – including Japan and South Korea – already have robust civilian nuclear programs. This breakout capability will only make it more tempting for policymakers to order a mad dash for the bomb.

Source: Zachary Keck is Assistant Editor of The Diplomat. <http://thediplomat.com>, 03 July 2013.

OPINION – Michael Richardson

Deterring an Asia Nuke Race

How many NWs and delivery systems does a country need as an effective deterrent against the threats of attack? Finding an acceptable balance is critically important in Asia, where four of the world's nine nuclear-armed states are located. SIPRI reported in June that all four Asian nations with NWs – China, India, Pakistan and North Korea – appeared to be expanding their arsenals while the US, Russia, France, Britain and Israel were either reducing them or holding the number static.

Asia may be sliding into a nuclear arms race, aggravated by underlying tensions and mistrust. As one NWs state enlarges its arsenal, other

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regional atomic powers do the same. SIPRI estimated that China, India and Pakistan had each added about 10 warheads to their operational stockpiles in 2012. Meanwhile, as the SIPRI report noted, each is improving delivery systems: the ballistic or cruise missiles or bomber aircraft that could carry nuclear warheads.

Without mutual restraint in Asia, other regional countries with civilian nuclear reactor experience and the

necessary resources and skills could also decide to protect themselves by developing their own nuclear arms. Such potential "threshold" countries include South Korea, Japan, Taiwan, Australia, Indonesia and Vietnam.

Former US Senator Sam Nunn, a driving force for a nuclear threat reduction group of security specialists and former senior officials from 18 countries, cautions that when "a large and growing number of nuclear-armed adversaries confront multiple perceived threats, the risk that deterrence will fail and that NWs will be used rises dramatically." Another prominent member of the group, former US Secretary of Defense William Perry, says that there is only a short time left to pull back from the edge of a nuclear precipice. "Asia is an important backdrop for this discussion, as a nuclear-armed North Korea threatens regional stability and could spark a new wave of proliferation," he warns.

Their comments follow a recent call by US President Barack Obama for America and Russia to open new arms control talks to further cut their deployed long-range nuclear arms by as much as one-third. The last bilateral START, signed by Moscow and Washington in 2010, requires each nation by 2018 to cap its stockpile of fielded nuclear warheads at 1,550. So under Obama's proposal, a new ceiling could become approximately 1,000 deployed strategic warheads apiece.

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Under the current START pact, the two former Cold War adversaries also agreed to limit fielded nuclear delivery vehicles, including bombers and missiles based on land and at sea, to 700, with an additional 100 allowed in reserve. But the START deal does not cover all nuclear warheads or delivery systems, only those classed as long range. Nor

does it encompass all nuclear armed states, although at least 90 per cent of atomic arms belong to the US and Russia.

The SIPRI report estimates that at the start of 2013, eight of the nine nuclear armed nations had approximately 4,400 operational atomic weapons, with nearly 2,000 "in a state of high operational alert."

North Korea was assessed to have perhaps six or eight nuclear bombs, none of them operational. This evidently means they cannot yet be made small enough to be carried by North Korean missiles or bombers.

SIPRI said that if all the nuclear warheads held by the nine nations with atomic weapons were counted, the total would amount to approximately 17,270 NWs, with a variety of short-, medium- as well as long-range delivery systems. The total warhead count includes spares, those in both active and inactive storage, and intact warheads set to be dismantled, as well as operational warheads. Obama also called for the reduction of US and Russian non-strategic, or tactical NWs in Europe. These have never been officially counted or limited by any international treaty.

One reason Russia gives for being reluctant to negotiate further bilateral nuclear cuts with the US is that some other nuclear-armed countries are strengthening their warhead and missile capabilities. This is an evident reference to China among others, even though Moscow and Beijing have formed a "strategic partnership" to oppose US and Western domination. China's position is that the US and Russia have the overwhelming majority of strategic NWs and delivery systems, meaning those capable of traveling intercontinental distances and causing massive destruction. So Washington and Moscow should continue to make "drastic" cuts in their stockpiles in a verifiable and irreversible manner.

Cheng Jingye, China's top envoy to a UN nuclear non proliferation conference, said in 2012 that once this was done, "other NWS, when conditions are ripe, should also join the multinational negotiations on nuclear disarmament." But when might that be?

One of the concerns of US critics of Obama's latest proposals is that China could use any extended new round of START negotiations that

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involve only America and Russia to enlarge and modernize its own nuclear arsenal in secret. Some US analysts say that this is already happening. The critics argue that if the size of the US and Russian arsenals keep dropping, China might be able to achieve numerical parity, or near-parity, quite quickly with the today's two dominant nuclear

powers. Non-nuclear Asian states, such as South Korea and Japan, look to their ally, the US, to protect them from nuclear attack under Washington's extended deterrence policy. If US nuclear strength and resolve appears to be weakening, they might become so alarmed at the heightened nuclear threats they face, whether from North Korea or China, that they would make their own dash for atomic arms.

Supporters of Obama's proposals dismiss such concerns, saying that Beijing would not want to incur the heavy financial costs of moving beyond minimum credible deterrence and risk triggering a full-scale nuclear arms race in Asia that would threaten China's own security. SIPRI estimates that China has about 250 nuclear warheads, compared with 300 for France and 225 for Britain. It reckons that India has 90 to 110 atomic warheads, Pakistan has 100 to 120, and Israel 80. These are well within minimum credible deterrence limits. Keeping them there will be the key to preventing a post-Cold War nuclear arms race in Asia.

Source: Michael Richardson is a Visiting Senior Research Fellow at the ISEAS in Singapore. <http://www.japantimes.co.jp/>, 08 July 2013.

OPINION – Robert Kulak

Is Obama's "World Without Nuclear Weapons" a Stand Worth Taking?

President Obama said in a speech in Berlin in June, "Peace with justice and that means pursuing the security of a world without NWs – no matter how distant that dream may be." Who can be opposed to eliminating NWs? Well, as it turns out, a lot of people. It's going to be a tough sell. If it is going to be a tough sell, why would Obama bother? He would bother for several reasons, not the least of which is that he believes in it. But some suspect Obama of looking for

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a distraction or two from the current scandals his administration faces: Benghazi, the IRS scandal and the NSA scandal. Some might say that he also needs a political "win" in his second term after being beaten by a string of defeats such as gun control, the sequester kerfuffle, immigration, court defeats in his NLRB appointments as well as the aforementioned scandals... .

But there is perhaps another reason that Obama may support nuclear

disarmament: it will be a fight and there is nothing that Obama has spent so much time on during his tenure in the White House as fighting. It has become his *modus operandi*. When Obama latches on to a controversial issue, he does not seek to compromise or find common ground. Instead, he gets on Air Force One and jets to a location where he can appear before his minions replete with American flags, and attack his opponents in terms that they cannot accept.

Can nuclear disarmament be a winner for Obama? Let's look at what he's up against. According to a recent Rasmussen poll, just 27 percent agree with Obama's call for a reduction in the US nuclear arsenal. And 77 percent believe nukes are important, to some degree, to America's defense. While these 77 percent of voters won't have the opportunity to show their displeasure in voting Obama out, they will have the opportunity to vote out senators who must ratify any treaties.

...But may be Obama will employ another *modus operandi* that he commonly uses: governing without congress or the judiciary. He has administratively enacted portions of the failed Dream Act, ignored the courts' finding that his appointments to the NLRB were illegal and he extended the ACA compliance date for small businesses although the Act sets a firm date and gives no one the power to change that date. In Berlin he said, "I've determined that we can ensure the security of America and our allies, and maintain a strong and credible strategic deterrent, while reducing our deployed strategic nuclear weapons by up to one-third." That sounds like it may be a unilateral move... .

Today there are 10 countries that are believed to have – or almost have – NWs. They are the US, Russia, China, the UK, France, Israel, India, Pakistan, North Korea and Iran. (And were it not for Israel's air strikes, we would be adding Iraq and Syria

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So far, the Russians are reportedly cool to Obama's nuclear reduction plan. Remember, Russia has gone, over the past 25 years, from being a world power to being a third-world country with NWs. If they get rid of the nukes, then they're just a third-world country.

to the list). Are they all trustworthy? Obama says that we can "reject the nuclear weaponization that North Korea and Iran may be seeking." ... We'll just reject nuclear weaponization. And if they don't play along, we'll double-dog reject nuclear weaponization.

And, what about the Russians? If they are such reliable nuclear partners, why did they object so strenuously to our plan to put a missile defense shield in Poland and

the Czech Republic – and why are they now developing their own missile defense system and why are they violating existing nuclear limitation treaties? So far, the Russians are reportedly cool to Obama's nuclear reduction plan. Remember, Russia has gone, over the past 25 years, from being a world power to being a third-world country with NWs. If they get rid of the nukes, then they're just a third-world country.

"It's necessary," Putin's foreign policy adviser Yuri Ushakov told German news magazine *Der Spiegel*, "to bring other countries that possess NWs into the process." Yes, that makes sense but we've been trying to do that with Iran and North Korea for years and the prospect of success in doing so is slim. Putin himself has indicated that he wants to keep the nuclear balance of power intact – which could be a hard-sell to the Chinese, North Koreans and Iranians.

And what of the Chinese? They're in the middle of a strategic nuclear build-up. They are estimated to have 240 nukes and a submarine capable of delivering nuclear missiles. The likelihood that they would want to get rid of their weapons is small. The nuclear club is national prestige and they don't want to get rid of the capabilities they've just created. It's laudable to take a moral stand against something that is a threat to mankind as are NWs. In 1928, the world took a strongly moral stand by creating the Kellogg-Briand Pact. Within one year some 54 nations had signed it. Two years later, Japan (one of the signatories) invaded China (another of the signatories) in what many date as the start of World War II. The signatories of Kellogg-Briand had morally rejected war just as Obama rejects nuclear weaponization – with no concrete enforcement provisions. So much for good moral intentions.

Maybe a nuclear control treaty will work better than the Kellogg-Briand

Pact. Although there has never been a weapon created that wasn't used, NWs were used just once – almost 70 years ago. But it seems that vigilance should be a dominant part of any US nuclear policy. Obama has given no indication that this is part of his proposed nuclear initiative. "Peace with justice," Obama said, "means pursuing the security of a world without NWs – no matter how distant that dream may be." He may have no idea just how distant that dream may be. Moreover, unilateral disarmament and the inability to enforce agreements may be far worse for us than maintaining a nuclear arsenal and being prepared for any eventuality....

Source: <http://www.examiner.com/>, 07 July 2013.

OPINION – David Krieger

Continuing the Struggle against Nuclear Weapons

...NWs threaten the existence of civilization and the human species. We humans cannot continue to be complacent in the face of the nuclear dangers that confront us. Too many people are complacent and too many are ignorant of the threat posed by these weapons. Albert Einstein warned: "The unleashed power of the atom has changed everything save our modes of thinking and thus we drift toward unparalleled catastrophe." The nature of the catastrophe was demonstrated first at Hiroshima and then at Nagasaki. We continue to face the possibility of a global Hiroshima.

If even a few NWs were used today, the humanitarian consequences would be beyond our capacity to cope. There would not be enough surviving medical personnel available to aid the suffering of the victims. There would not be enough hospitals or burn wards. Water supplies would be contaminated. Infrastructure would be destroyed. The damage would not be containable in either time or space.

Atmospheric scientists have modeled the effects of the use of NWs. They find that the use of only one hundred Hiroshima-size NWs in a regional war between India and Pakistan would trigger a nuclear famine that would lead to the deaths by starvation of some one billion people globally. That would be the result of a small nuclear war. How would this happen? The weapons would destroy cities, putting massive amounts of soot into the stratosphere, blocking warming sunlight, shortening growing seasons, causing crop failures and food shortages.

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Nuclear deterrence does not protect us. If it did, there would be no need for missile defenses. Nor would we object to other countries developing nuclear deterrent forces. And, of course, nuclear deterrence does not even apply to terrorist organizations, which have no territory to retaliate against and may be suicidal.

A large-scale nuclear war between the US and Russia would, of course, be far worse, lowering temperatures on Earth to Ice Age levels. There would be few survivors.There has been progress. By 1986, the number of NWs in the world had ballooned to 70,000. Today, the number is around 17,000. Over 50,000 NWs have been eliminated. That is worth celebrating, but not for too long. It hasn't changed the fundamental proposition that nuclear war could destroy most complex life on the planet, and this planet remains the only place we know of in the universe where life exists. As Carl Sagan used to remind us, we live on a "pale blue dot," our planetary home, one which is infinitesimally small in relation to the universe, but infinitely precious.

President Obama, in a recent speech in Berlin, stated, "Peace with justice means pursuing the security of a world without nuclear weapons – no matter how distant that dream may be." Yes, we – all of us – need the security of a world without NWs, but why must the dream be distant? Why must we think of the dream as being distant? Why must President Obama frame it in this way? Is he not demonstrating a deficit of leadership in doing so? Whose interests are being served – those of corporate weapons makers or those of the people of the world?

Nuclear deterrence does not protect us. If it did, there would be no need for missile defenses. Nor would we object to other countries developing nuclear deterrent forces. And, of course, nuclear deterrence does not even apply to terrorist organizations, which have no territory to retaliate against and may be suicidal.

Nuclear weapons are actually suicidal weapons. Use them, and they will be used against you. Use them, and run the risk of nuclear famine or nuclear winter. They may also be omnicidal weapons, their use leading to the death of all. If we want to end the insecurity of a world with nuclear weapons, we must continue the struggle for a world without them. And we must realize that the nature of the

weapons require that the struggle be approached with a sense of urgency and boldness. So, I continue the struggle – in the hope that you may join with me and many others to make the abolition of nuclear weapons an urgent – rather than distant – dream.

Source: Author is president of Nuclear Age Peace Foundation. <http://truth-out.org>, 03 July 2013.

OPINION – Barry M. Blechman

US Nuclear Policy is Sound

The June 23 op-ed by Eric Edelman and Robert Joseph, "Obama is pursuing nuclear folly," accused the president of jeopardizing our national security, and that of our allies, by preparing for unilateral cuts to US nuclear forces. But the authors are tilting at windmills. President Obama's recent speech in Berlin included no announcement of

unilateral reductions in the US nuclear arsenal. The far more detailed "Report on Nuclear Employment Strategy of the United States," released with the speech, makes clear that the administration contemplates no significant changes in US forces or nuclear policy without comparable changes by Russia.

There can be no question that the US intends to maintain nuclear forces at least comparable to those of Russia. The report notes that "large disparities in nuclear capabilities could raise concerns on both sides and among US Allies and partners, and may not be conducive to maintaining a stable, long-term strategic relationship, especially as nuclear forces are significantly reduced."

The State Department repeatedly has said that the US has no intention of moving alone to lower levels of NWs.... If any country's security is threatened by nuclear inferiority, it is Russia. Russia already is below the level of forces specified in the 2010 New START treaty; the US remains above it. The latest data exchange mandated by the treaty, and verified by on-site inspections, showed that as of March, the Russians had 1,480 operational warheads on 492 long-range missiles and bombers. Meanwhile, the US maintained 1,654 operational warheads on 792 long-range missiles and bombers.

No wonder Russian President Vladi-mir Putin is so belligerent – and beginning to allocate resources to nuclear modernization. He must be terrified by Russia's nuclear weakness, particularly given his country's vastly inferior conventional military forces. Putin's emphasis on nuclear forces is reminiscent of President Dwight Eisenhower's emphasis on massive nuclear retaliation – a posture he adopted to mask the inferiority of

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Reducing the size of our strategic force by one-third would save a lot of money – funds that could potentially shore up conventional air, naval and ground forces being hollowed out by the sequester-driven budget cuts. Which would be worse: being unable to deploy an aircraft carrier to the Persian Gulf because of budget cuts or reducing the number of nuclear warheads deployed on submarines?

US conventional forces to those of the Soviet Union in the 1950s.

For those of us who share Obama's stated desire for "the peace and security of a world without NWs," his Berlin speech and, particularly, the recent report are great disappointments. The ceiling mandated by New START – 1,550 warheads – is an artifice: a number contrived years ago based on speculation about how many Russian targets would have to be held at risk

to deter a nuclear strike on the US.

Deterring Russia is the gold standard because no other nation has even one-tenth the number of NWs in US and Russian stockpiles. We've depended on these kinds of speculations to establish nuclear "requirements" since the 1950s. During the Cold War, this led to stockpiles in excess of 25,000 NWs, with multiple weapons aimed at high-value targets. Both sides have since modified their nuclear war plans.

What would it take to deter a Russian leader from attacking the US today? An expectation that we would retaliate with 10 nuclear explosions, 50 or 100? No one knows, of course. But the Obama administration, supported by the Joint Chiefs of Staff and US Strategic Command, has concluded that 1,000 warheads would be sufficient. Maintaining a modern nuclear force is very expensive. This country is developing a new generation of ballistic-missile submarines and a new penetrating bomber and is exploring options for maintaining a force of land-based intercontinental missiles. The recent nuclear report explicitly says that the US will maintain this "triad" of strategic forces. A nuclear capability is also being added to F-35 tactical fighters.

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Operational nuclear forces could be reduced without jeopardizing US national security or that of our allies.

In addition to operational warheads, the US maintains 2,500 warheads in reserve – warheads that could be deployed on long-range missiles or bombers. The June report said this nuclear reserve will be maintained until the US has modernized its NWs production infrastructure, a process it estimated would take at least a decade. Most experts believe it will take much longer. If the Russians want to waste their resources on nuclear dinosaurs, let them. The US should move unilaterally to the level of forces necessary to ensure our security with or without the other side.

Source: *Author is distinguished fellow and co-founder of the Stimson Center. <http://www.washingtonpost.com>, 06 July 2013.*

OPINION – Lawrence Wittner

Still Preparing for Nuclear War

Nearly a quarter century after the disappearance of the Soviet Union and the end of the Cold War, the US government is still getting ready for nuclear war. This fact was underscored on June 19, 2013, when the Pentagon, on behalf of President Obama, released a report to Congress outlining what it called the US government’s “Nuclear Employment Strategy”. Although the report indicated some minor alterations in US policy, it exhibited far more continuity than change.

In 2010, the administration’s NPR declared that it would work toward making deterrence of nuclear attack the “sole purpose” of US NWs. The 2013 report, however, without any explanation, reported that “we cannot adopt such a policy today”. Thus, as in the past, the US government considers itself free to initiate a nuclear attack on other nations. In addition, the 2013 “Nuclear Employment Strategy” continued US government reliance on a “nuclear triad” of ground-launched ICBM, submarine-launched ICBM, and bomber-launched NWs. Although the need for one or more legs of this “triad” has been debated since the early 1990s, the 2013 report concluded that “retaining all three triad legs will best maintain strategic stability”.

The 2013 “Nuclear Employment Strategy” also retained another controversial aspect of US nuclear policy: counterforce strategy. Designed to employ US NWs to destroy an enemy nation’s NWs, delivery systems, and associated installations, counterforce is potentially very destabilizing, for it provides an incentive to nations caught

up in a crisis to knock out the opponent’s NWs before they can be used. And this, in turn, means that nations are more likely to initiate nuclear war and to desire large numbers of NWs to avoid having their weapons totally destroyed by a preemptive attack. Consequently, as Hans Kristensen of the FAS has noted, the report’s emphasis on counterforce “undercuts efforts to reduce the role and numbers of NWs”.

Furthermore, despite a growing desire among Western nations to have the US government remove an estimated 200 nuclear-armed B61 gravity bombs – weapons dating back to the 1960s – deployed in Belgium, Germany, Italy, the Netherlands, and Turkey, the Pentagon report made no proposal along these lines. These Cold War relics, too, remain untouchable.

One shift in emphasis indicated in the “Nuclear Employment Strategy” is a presidential directive to Pentagon officials to “reduce the role of launch under attack”. Currently, it is US policy to fire NWs at an opponent

One shift in emphasis indicated in the “Nuclear Employment Strategy” is a presidential directive to Pentagon officials to “reduce the role of launch under attack”. Currently, it is US policy to fire NWs at an opponent on short notice if there are signs that a nuclear strike is under way against the US or its allies.

on short notice if there are signs that a nuclear strike is under way against the US or its allies. But this reduction in the likelihood of sliding into a full-scale nuclear war would be more reassuring if the President’s directive did not also command the Pentagon to retain a launch-under-attack capability, in case the President decided to use it.

But what about Obama’s lofty rhetoric of April 2009, in Prague, where he stated that the US government was committed to building a nuclear-weapons-free world? Also, didn’t he renew that approach in his Berlin speech of June 19, 2013, only hours before the issuance of the Pentagon’s “Nuclear Employment Strategy”, when he called for nuclear disarmament negotiations with the Russians? Yes, the rhetoric of 2009 was very inspiring, landing Obama a Nobel Peace Prize and raising hopes around the world that the nuclear menace was on the verge of extinction. But fairly little came of it, with the modest exception of the New START Treaty with Russia.

The Berlin speech, too, was substantially over-rated. Although many media reports implied that Obama had proposed decreasing the Russian and American nuclear arsenals by a third, the reality was that the President suggested his readiness to support a reduction of “up to” a third of *deployed* Russian and American *strategic* NWs. Under the New START Treaty, the limit to the number of these kinds of weapons in each nation is 1,550. Thus, in

reality, Obama announced that he favored an agreement for each nation to eliminate 1 to 517 of them. From the standpoint of nuclear disarmers, that reduction would certainly be welcome – if, in the face of Republican resistance, it is ever consummated. But, it should be noted that, at present, the US government possesses approximately 7,700 NWs.

Another indication that the Obama administration is in no hurry to fulfill its promises about building a NWs-free world is found in its fiscal 2014 budget proposal to Congress. Here, amid sharp cuts for a broad variety of programs, there is a proposed 9% increase in federal funding for the Energy Department's US NWs activities, including upgrading nuclear warheads (like the B61 gravity bomb, slated for a \$10 billion makeover) and modernizing NWs production facilities.

This administration unwillingness to discard the immensely dangerous, outdated nuclear policies of the past flies in the face of public support for abolishing NWs, whether expressed in public opinion polls or in the resolutions of mainstream bodies like the NCC and the US Conference of Mayors. But, unless there is a substantial public mobilization to end the American government's reliance on nuclear war, it seems likely that US officials will continue to prepare for it.

Source: Author is Professor Emeritus of History at SUNY/Albany. <http://www.huntingtonnews.net>, 09 July 2013.

OPINION – John Watson

Want to Kill Fewer People? Go Nuclear

Most of us do not understand every quantum-level nut and bolt of nuclear power – we have physicists for that. That does not quite explain why many people still treat it like black magic. Any suggestion that we use nuclear power virtually incites a pitchfork-waving mob who demand we have nothing to do with it, while relying on other energy sources that all kill more people. Nuclear power is the safest source of energy by a long way. Solar power causes five to 10 times as many deaths (depending on the estimate of panel longevity) per unit of energy generated.

That can't be right, is most people's first instinct. Similarly, findings by a UN panel and the WHO that the Fukushima nuclear accident caused no deaths or illnesses, and is unlikely to affect the future health of anyone but a few emergency staff, were so widely ignored they must simply

have been disbelieved. Remember, this was the worst-case nuclear scenario of reactor meltdowns amid the catastrophe of one of the biggest earthquakes and tsunamis in history. The operator had a culture of corner-cutting and cover-ups. Even then, the record shows, the predictors of apocalypse got it badly wrong and the experts – nuclear physicists – got it right.

We also have decades of operational experience and research, which enable us to calculate every energy source's "death print". The data compiled by the WHO, the IEA, NASA, the CDC and the NAS in the US, and the Europe-wide ExternE project all points to a similar conclusion. Counting the deaths from power-producing activities and associated pollution and environmental damage, coal is by far the most deadly (and most studies

exclude speculative estimates of global warming impacts). The WHO attributes at least 1 million deaths a year to coalmining, transport and operating accidents and air, soil and water pollution. (By contrast, even the radiation exposure of wildlife in the Fukushima evacuation zone was "too low for observable acute effects".) In countries where coal is a big part of the energy mix, such as Australia, this increases healthcare costs by an estimated 10%.

Coal supplies half the world's electricity, in spite of an estimated global death rate of about 100 lives per TWh of power – much higher than all other sources. Oil is next with 36 deaths. The world uses the two deadliest power sources for 60 per cent of its energy needs. The fourth most dangerous source, natural gas, supplies 21%, at a death rate of four per TWh.

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Biofuel claims 12 lives for every TWh, hydro 1.4 lives (largely because of rare but catastrophic dam failures), solar 0.44 lives (mostly through roof falls and electrocution) and wind 0.15 lives. Safest of all is nuclear, which supplies 17 per cent of global electricity, at 0.04 deaths per TWh. Thus, for a given amount of energy, coal power kills about 2500 times as many people.

... What about Chernobyl, the full cancerous horror of which is yet to come? Well, the above calculations include the WHO's worst-case estimates of future Chernobyl deaths. Anti-nuclear advocates rely heavily on one disaster 27 years ago, when not one plant today is comparable to

Chernobyl's fatally flawed design. It even lacked a proper containment vessel. Building of the Chernobyl plant began in 1970, just 14 years after the world's first commercial nuclear power station opened. To use Chernobyl as a guide to assessing current third-generation nuclear plants and the coming fourth generation is like judging today's vehicle safety on the basis of the Model T Ford first made in 1910, 14 years after the first commercially made car. ...

Source: Excerpted from article at <http://www.theage.com.au>, 11 July 2013.

NUCLEAR STRATEGY

INDIA

India May Take Another N-Sub on Lease

India has expressed interest in leasing another nuclear attack submarine from Russia to supplement the Akula class hunter-killer that was inducted in 2012 and the two sides are now ready to start negotiations on the project.... Tentatively christened INS Chakra III, the new submarine will be a variant of the Akula class of stealthy nuclear-powered submarines that are capable of spending months under water but is likely to be equipped with more lethal weaponry, including a vertically launched Brahmos missile system.

If the project goes through, this would be the third Russian nuclear submarine to be operated by India. The first being the original INS Chakra that was taken on a three-year lease in 1988 and the second was inducted in 2012 after a four-year delay. It too has been named the INS Chakra. ... The submarine is likely to be reconstructed round the hull of the Irbis, a Russian Akula class submarine that was never completed as funds ran dry after the collapse of the Soviet Union.... In April 2012, the Eastern Fleet that is tasked with patrolling some of the most sensitive waters around India, formally inducted the INS Chakra, a stealthy nuclear-powered submarine acquired from Russia on a 10-year lease. The Akula II class submarine – renowned as one of the stealthiest in the world is an attack submarine – is nuclear-powered but does not carry nuclear missiles on board.

Source: <http://www.indianexpress.com>, 03 July 2013.

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Agni-V to be Tested Twice this Year, Could be Inducted by 2015

India's most formidable strategic missile, the over 5,000-km Agni-V, will be tested twice before this year ends to ensure it is ready for full-scale induction in the armed forces towards end-2015. Interestingly, the latter of the two tests will see the 50-tonne Agni-V being fired from a hermetically-sealed canister mounted on a launcher truck. A canister-launch system will give the forces the requisite operational flexibility to swiftly transport the ballistic missile and launch it from a place of their choosing. Consequently, the highly road-mobile Agni-V will be able to hit even the northernmost part of China if fired from close to the LAC.

... Similar plans are underway to make the two-stage Agni-IV, with a 3,500-km strike range, ready for induction by end-2014. The armed forces have already inducted the Pakistan-specific Agni-I (700-km) and Agni-II (over 2,000-km) as well as the 3,000-km Agni-III. The Agni-IV and Agni-V missiles, however, are in a different class with "much higher accuracy and kill efficiencies" to give teeth to the minimum credible deterrence posture against China. With a massive nuclear arsenal and missiles like the 11,200-km Dong Feng-31A capable of hitting any Indian city, Beijing is leagues ahead of New Delhi.

DRDO, however, remains unfazed. Work is in progress to make the solid-fuelled Agni-IV and Agni-V, the latter virtually an ICBM, even more lethal. "After these two missiles are inducted, the two major focus areas will be maneuvering warheads or re-entry vehicles to defeat enemy BMDs and MIRVs".... A MIRV payload implies a single missile carrying several nuclear warheads, each programmed to hit different targets. "But there is no Agni-VI programme as of now. We are working on enabling technologies and capabilities ... we will come to the Agni-VI programme, if required, later"...

But is DRDO being too optimistic about the Agni-IV and Agni-V induction schedules, given that both have been tested only once till now? "No, we require just six to seven trials. We are no longer in the age when a large number of trials are required," said Chander, a missile scientist who was the overall head of the expansive Agni programme earlier. "These surface-to-surface

missiles have well-defined (parabolic) trajectories, unlike say air-to-air missiles....

Source: *Times of India*, 29 June 2013.

UK

'Bloody' Infighting Precedes Release of UK Trident Alternatives Study

The British government is toiling to resolve internal objections at its Defense Ministry on the findings of a comprehensive official study into alternatives for maintaining the country's nuclear forces. Whitehall is understood to have protested the report's publication as it might bolster the argument for abandoning or reducing the current plan to fully replace the UK's aging fleet of four Vanguard-class SSBNs equipped with nuclear-tipped Trident SLBMs.

PM Cameron is reported to have told Cabinet Secretary Jeremy Heywood to do whatever was needed to determine quickly what information in the report would be kept classified and what could be released. The outcome could affect the extent of public debate over the matter just two days before the House of Commons commences a lengthy summer recess.

Opponents of the Trident renewal plan argue it is too expensive and not needed in today's post-Cold War security environment. An informed anonymous source said the fight inside the government over whether to publish the report was "pretty bloody." The report is the work of the coalition government's junior partner, the Liberal Democrats, who oppose the "like-for-like" replacement plan. The Conservative Party, the senior governing partner, supports carrying on with the plan to build four new SSBNs but has agreed to postpone a final decision on building the vessels until after the next general election in 2015.

There are a number of alternatives for the country's nuclear forces, including reducing the fleet of SSBNs from four to two submarines, moving to "reduced readiness," dismantling the nuclear weapons but retaining the technical knowledge to rebuild them, or completely denuclearizing. Chief Secretary of the Treasury Danny Alexander, who managed the drafting of the report, said the study did not find any options that would produce

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"appreciable savings" to government coffers prior to the end of the decade, the British Press Association reported.

Meanwhile, London sought to push down on an idea recently floated by anonymous government sources that it could declare nuclear weapon bases in Scotland sovereign British possessions in the event a scheduled 2014 vote on succession is successful, the Press Association separately reported. Declaring the nuclear installations at Faslane British territory is not a "credible or sensible" plan, a spokesman for Cameron said. The rumored proposal has not been presented to the British leader or his Defense secretary, Philip Hammond, the aide said. ... The locally governing Scottish National Party has vowed to order the removal from Scotland of the SSBN fleet and their Trident missiles if the territory becomes independent.

Source: <http://www.nti.rsvp1.com>, 12 July 2013.

BALLISTIC MISSILE DEFENCE

INDIA

'Tejas' to be Ready by 2014: DRDO Chief

.... More trials need to be carried out for the BMD system being spearheaded by DRDO with respect to both 'endo' and 'exo' atmospheric interception capabilities and one such trial was slated for September. Saying that the assessment for the readiness of the BMD for deployment would be carried out by 2014 end... currently radars were being prepared for integration with the BMD.

Though the project has long been viewed with scepticism ... the BMD, a two-tiered system comprising two interceptor missiles for high and low altitude interception, would be deployed first in Delhi followed by one more city and finally some key cities across the country. ... Miniaturized avionics that provide all avionics systems including navigation, telemetry and mission computers on a single module is in the pipeline ... this would not only reduce power consumption but would also weigh less without compromising on accuracies. Meanwhile, RCI is focusing on production of Infra Red and Radio Frequency seekers in addition to MEMS and NEMS based sensors.

Source: <http://articles.timesofindia.indiatimes.com>, 02 July 2013.

5,000km-Range Missile Shield Ready for Deployment

India's missile defence system is set to get a big boost as it is developing capability to intercept enemy missiles fired from a distance of up to 5,000km, in effect tackling any possible threat from countries such as China. The capability is being developed by DRDO as part of the BMD shield, whose first phase is ready for deployment possibly in Delhi. Development of the first phase of the BMD programme has been completed.... Under this, the BMD shield can tackle enemy missiles fired at from ranges up to 2,000km. Taking this forward, the DRDO is enhancing the capability of BMD in phase-II to deal with threat from missiles of longer range of up to 5,000km... . For deployment, the government will have to give necessary directions after which the components would be put in place.

Source: <http://www.omantribune.com>, 10 July 2013.

USA

Why is Obama Playing Missile Defense Whack-a-Mole?

After considerable debate in Congress, it appears as though the long-discussed east coast missile defense site is finally going to become a reality. Earlier in June, during its deliberations over the 2014 NDAA, the House Armed Services Committee voted to give the Pentagon the authority to begin construction on the project in 2014, and to have it operational by 2018.

But lost in the debate over the virtues of placing GBI in the northeast US is the larger question of what American missile defense policy is as a whole. The answer is troubling: simply put, we don't have one. Shortly after taking office, President Obama declared that he would not follow through with his predecessor's plans to deploy 14 more missile interceptors. That system, known as GMD, is the main US protection against medium- and long-range ballistic missiles, including ICBM that can carry nuclear warheads.

But the administration determined that adding these interceptors was not imperative, even though Iran and North Korea had made clear their intentions to develop and deploy missiles capable of reaching the US. This represents a significant mistake, and one underpinned by faulty logic. The White House appeared to be saying that,

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since hostile nations don't currently have the capability to attack us, we can put off building defenses until they do.

Tellingly, Defense Secretary Chuck Hagel articulated what amounted to an about-face on the part of the administration when he announced back in March that the US would, in fact, deploy the GBI on the west coast. But the damage has already been done; the US gave Tehran and Pyongyang a four-year head start in developing the weapons necessary to defeat our defenses. Moreover, there is growing evidence that North Korea in particular may have done just that.

Creating an effective missile defense framework requires preparing ourselves to defeat threats that have not yet fully developed. A conservative estimate of North Korean capabilities, for example, would assume that Pyongyang will be able to field a moderately reliable, nuclear tipped ICBM by 2015 (although this may happen considerably sooner, if intelligence community reports are to be believed). Considering that it takes at least five years to bring a GBI site online, construction on the 14 interceptors finally green-lighted by the White House this spring should have begun in 2010, if not earlier.

Missile defense policy requires strategic thinking, not tactical maneuvers. Anything less will result in a missile shield that is at best flawed and at worst useless. For these reasons, the US must be proactive in focusing on new technologies capable of protecting

American citizens and the US homeland from ballistic missile attack. Which brings us back to the east coast site. The justification often used for its construction is a favorable 2012 report released by the NAS. While it's true that the study did recommend the project, it also said that "an additional interceptor site with the new evolved GBI" was needed for optimum coverage of the US. That job, however, hasn't yet been done. As a result, Congress is rushing to build the new interceptor site without upgrading the interceptors themselves.

Nor is it yet taking real measures to minimize the damage to US critical infrastructure that would take place were our missile defenses to fail and a nuclear device detonate. Such an explosion would release an electromagnetic pulse blast that would devastate our increasingly wired country. Moreover, it could be created using a fairly unsophisticated bomb. (At least one piece of legislation aimed at hardening US infrastructure against EMP attack – the SHIELD Act – is currently under consideration by Congress. Its passage, however, has been held up by partisan political bickering.)

All this underscores the sad reality that the US government has grown content with playing whack-a-mole, responding to threats as they pop up. Instead, we need to be playing chess, thinking five moves ahead of our adversaries and investing in the technologies that can counter future missile threats. Only then will the US focus on defenses capable of defeating both the threats of today and of tomorrow.

Source: Excerpted from article by Jack Goldstein, researcher at the American Foreign Policy Council, <http://www.usnews.com/>, 25 June 2013.

A planned facility to process nuclear fuel in Jiangmen of Guangdong province has been canceled, following opposition by a majority of residents. The 229-hectare Longwan Industrial Park project, which had been scheduled in Heshan, a county-level city in Jiangmen of the Pearl River Delta region, would have featured facilities for uranium conversion, enrichment and manufacturing of nuclear fuel equipment.

Protestors said they were upset because the planned site is only 30 kilometers away from the heart of the city. "We don't need such a project to boost the economy. Instead, we need a healthy living environment," said a resident surnamed Huang. The cancellation of the plant came after China shook off concerns over nuclear safety after the Fukushima disaster in Japan, and announced plans to increase the installed nuclear power generation capacity in the following years. China's electricity generated

by nuclear power plants accounted for only 1.2 percent of the total electricity in 2012, sources told Xinhua. The plan has been to increase that to 5 percent by 2020.

Source: China Daily, 14 July 2013.

NUCLEAR ENERGY

CHINA

Guangdong Officials Cancel plans for Fuel Facility after Public Outcry

A planned facility to process nuclear fuel in Jiangmen of Guangdong province has been canceled, following opposition by a majority of residents. The 229-hectare Longwan Industrial Park project, which had been scheduled in Heshan, a county-level city in Jiangmen of the Pearl River Delta region, would have featured facilities for uranium conversion, enrichment and manufacturing of nuclear fuel equipment, sources with the government said.

However, the project has met criticism from local residents since authorities publicized a risk-stability assessment report about the industrial park on July 4. Many residents "took a walk" on streets in protest against the project on Friday, holding banners and wearing T-shirts with slogans calling to halt construction of the planned facility, Xinhua News Agency reported.

"We pay respect to the residents' opinion and will not apply for approval for the project," Wu Yuxiong, mayor of Heshan, said on 13 July. The project was owned by China National Nuclear Corporation, the main body of the national nuclear technology industry. The company did not comment about the suspension. The project, the first industrial park planned in South China for nuclear fuel production, was designed with an investment of up to 37 billion yuan (\$6.02 billion). It would have supplied power plants in Guangdong and neighboring Fujian province, with designed capacity of 1,000 tons of uranium in 2020.

Nuclear power remains an important option for many countries to improve energy security, provide energy for development and fight climate change.

GENERAL

Nuclear Power to Play Important Role in Coming Years, Says IAEA

IAEA DG Yukiya Amano said that nuclear power will make a significant and growing contribution to sustainable development in the coming decades. Amano made the comments at the International Ministerial Conference on Nuclear Power in the 21st Century, which was held between 27 June to 29 June in St. Petersburg. IAEA organized the conference in cooperation with the NEA of the OECD, and hosted by the Government of the Russian Federation through the Rosatom... Participants in the conference agreed that each country had a responsibility to establish an appropriate and adequate legal framework, and to fulfil its obligations in nuclear security and non-proliferation safeguards, as well as nuclear safety.

The conference concluded that nuclear power remains an important option for many countries to improve energy security, provide energy for development and fight climate change. Amano noted that after the accident at the Fukushima Daiichi nuclear power plant in Japan in March 2011, effective steps have been taken to make nuclear power plants safer everywhere.

"The IAEA is committed to ensuring that the expansion of nuclear power takes place in a way which results in maximum safety, reliability and efficiency, and guards against the proliferation of nuclear weapons," Amano added.

Source: <http://nuclear.energy-business-review.com>, 02 July 2013.

Safety, Readiness, Modularity, and Efficiency

Nuclear energy is at a crossroads. It supplies a substantial share of electricity in many developed economies – 19 percent in the US, 35 percent in South Korea, 40 percent in Sweden, 78 percent in France – but these figures may decline as reactors built in the 1960s, 1970s, and 1980s retire. Meanwhile, developing countries are increasingly turning to nuclear to meet rapidly growing energy demand and to reduce pollution. China is currently building 28 reactors and has plans for dozens more; 11 are under construction in Russia, seven in India. Nevertheless, fossil fuels remain dominant worldwide, with coal the reigning king and natural gas production booming. The central challenge for nuclear energy, if it is to become a greater portion of the global electricity mix, is to become much cheaper.

A new Breakthrough Institute report, “How to Make Nuclear Cheap: Safety, Readiness, Modularity, and Efficiency”, details a number of new advanced reactor designs that bring substantial benefits over the existing light-water fleet, such as inherent safety mechanisms and the ability to reuse spent fuel. Yet not all features will result in lower costs. So what are the key characteristics that will make advanced nuclear energy cheaper?

The answer lies in part in discerning what has contributed to rising costs. While existing nuclear plants produce affordable energy – they have the second lowest production costs in the US – new builds have become expensive largely because of strict building standards, environmental and safety regulations, and labor costs. Safety features necessary for current generation reactors – especially massive containment domes and multiply redundant cooling and backup systems – make up a significant portion of such costs.

It is just as important to identify which factors will not decisively influence cost. Fuel availability, waste disposal, and proliferation risk are largely political and institutional concerns, rather than technological challenges, and will continue to require attention regardless of what new designs are pursued. Innovations in fuel cycle and waste reprocessing are unlikely to reduce costs until nuclear energy is much more widely deployed. Our assessment of nine advanced designs, from high-temperature gas reactors to fusion, finds four factors that will most likely prove determinative in achieving any significant cost declines.

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We conclude that policymakers, investors, and entrepreneurs should pursue reactors models that are:

1. **Safe:** Inherent safety characteristics eliminate the need for expensive and redundant safety systems.
2. **Ready:** Ready designs will utilize existing supply chains and will not require the development or commercialization of new or unproven materials and fuels.
3. **Modular:** Modularity allows whole reactors or their components to be mass-produced and assembled uniformly.
4. **Efficient:** High thermal efficiency enables reactors to generate more electricity from a smaller physical plant.

Reactors with advantages in these areas show an emerging technological path to safer and cheaper nuclear energy. A good place to begin is with the Generation III+ reactors currently being deployed, which exploit existing supply chains and incorporate new materials and techniques that will prove important to Generation IV designs. Gas-cooled and salt-cooled thermal reactors, which can also rely on much of the light-water supply chain and fuel cycle, are the most ready candidates for commercialization among Generation IV designs. Over time, fast reactors may become attractive for disposing of nuclear warheads and reusing spent fuel, though their widespread commercialization and deployment will most likely depend on the successful commercialization of advanced thermal reactors.

While it is crucial for policymakers to identify the technologies most amenable to commercialization and deployment, it is also important to not lock in energy systems to a single design, as in the case of light-water reactors. The choice is not, for example, between fast reactors and thermal reactors. Policymakers should instead support a broad commitment to nuclear innovation aimed at expanding, rather than restricting, technological options. To advance these priorities, policymakers should support three key areas of reform: Invest in nuclear innovation. Expand support for public research, development, and demonstration; certification of new materials; supply-chain development; and test facilities. Innovate across advanced designs. Prioritize technological challenges that have the greatest cross-platform relevance to multiple reactor designs. Licensing reform: Increase government cost-

sharing; integrate licensing with the innovation process, so developers can demonstrate and license reactor components; and lower the costs, regulatory barriers, and time to market for new designs.

Source: <http://thebreakthrough.org>, 07 July 2013.

INDIA

NSG Revises List, Continues India Debate

The NSG has completed a revision of its list of controlled exports, the group announced in Prague on June 14 at the end of its annual plenary meeting. At the meeting, representatives of the 48 member states continued to wrestle with the question of whether to admit India as a member.... President Barack Obama proposed that step during a visit to India in November 2010....

The revision of the list, which covers nuclear-specific and dual-use goods, took three years to complete, the June 14 statement said.... The June 14 statement said that the meeting participants discussed the role of the private sector in preventing proliferation and how NSG members could interact with companies that export nuclear goods.

... Kuchyòová highlighted the importance of companies' internal compliance programs to ensure that the firms "do not inadvertently violate national laws and thereby subject themselves to sanctions and reputational damage." Interaction with the private sector is "an important focus of our outreach," she said. Another target of her outreach efforts will be "non-NSG supplier states, including India, Pakistan and Israel," she said. Those three countries never have joined the NPT and maintain unsafeguarded nuclear programs. In September 2008, in a move led by the US, the NSG eased long-standing restrictions on nuclear trade with India by the group's members. NSG rules generally forbid the sale of nuclear goods, such as reactors and fuel, to non-NPT countries.

...Like the 2008 decision, the idea of admitting India is controversial within the NSG, which makes its decisions by consensus. The issue of Indian membership "raises some very difficult questions and needs to be discussed further," ...France, Russia, the UK, and the US among the strong supporters of Indian membership and China as a leading opponent. A key criterion for NSG membership is that a country is a party to and complying with the NPT or

a NWFZ treaty. India would be the first country that did not meet that criterion.

... The western European diplomat said his country is approaching the issue "with an open mind" but wants "a serious discussion" that "com[es] to grips with the implications" of the decision, for example, what it would mean for the implementation of NSG guidelines. He said it might be possible to find a formulation that is not "damaging" to the NPT regime but "brings India closer." India could "take a couple of steps toward the NPT community," he said. One example would be signing the CTBT, an "extremely high-value symbolic step" that would have little immediate practical effect on India, in part because the treaty has not entered into force and will not do so until India and seven other key countries have ratified it, he said. Also, he said, there already are other legal and political constraints on India's ability to conduct a nuclear test. The June 14 statement did not provide any information on the India discussions, repeating the language used in 2011 and last year....

Source: <http://www.armscontrol.org>, July 2013.

Kudankulam Nuclear Plant Reactor Attains Criticality, Moves One Step Closer towards Power Generation

The Kudankulam nuclear reactor, which has seen several delays and protests, finally attained criticality and began nuclear fission process late on Saturday night, officials of the NPCIL said. "At 23:05, the first reactor attained criticality and all the parameters are normal," a jubilant site director RS Sundar said.

Top officials of the Indian nuclear establishment, including AEC Chairman RK Sinha, and chairman

and MD of NPCIL KC Purohit, were at Kudankulam to see the first of the two Russian-made units attain criticality in a smooth manner. ... The Rs. 17,000 crore project, which generated widespread protests from the locals, has started generating heat and steam from the 163 uranium fuel bundles loaded in the reactor. The reactor was loaded with fuel assemblies containing about 80 tonnes of uranium oxide. After receiving clearance from the AERB, the process of criticality was started on 11 July 2013.

According to officials, several low power tests will be carried out in order to verify the conformance of the reactor characteristics to design objectives. If the reports are

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satisfactory, then the AERB will give its clearance for the next stage, which is phase-wise increase in reactor power level. At the first stage, the plant will be synchronised with the southern grid when power generation touches 400 MW. That is expected to happen in 30-45 days. After necessary regulatory clearances the power generation will be increased gradually to 50 percent, 75 percent, 90 percent and finally 100 percent. When that happens, the total installed nuclear power capacity in the country will go up to 5,780 MW.

KNPP is India's first pressurised water reactor belonging to the light water reactor category. While the power from KNPP will be shared by the southern states, the lion's share will be for the home state Tamil Nadu, which is suffering from power deficit. "Tamil Nadu's share of the 1,000 MW will be 463 MW. As and when the power comes to our grid, it will certainly ease the power shortage to some extent," a senior official at Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO) said. "The utility sources power from various central power generating units at varied rates but less than Rs. 3 per unit whereas the power from KNPP will be over Rs. 3 per unit," he added. According to Mr Sinha, the total outlay for the third and fourth units would be Rs. 40,000 crore....

Source: NDTV, 14 July 2013.

JAPAN

Japan to Give Nuclear Power another Chance

Japan appears poised to give nuclear power another chance, just over two years after the reactor meltdown at the Fukushima Daiichi nuclear power plant forced it to rethink its enthusiasm for atomic energy. The earthquake and tsunami that triggered the triple meltdown on March 11, 2011, rocked Japan's confidence in the safety of its nuclear facilities, forcing it to abandon plans to raise its dependence on nuclear from about a third of its total energy needs to more than 50 percent by 2030. Now, all but two of the country's 50 working reactors stand idle; none will be able to resume operations unless they meet strict safety standards introduced by the NRA, a new industry watchdog formed to help win over a deeply skeptical public.

The shift toward a bigger role for nuclear in Japan's energy mix began when four operators applied to restart 10

reactors at five plants. If the reactors meet the new standards – safety reviews are expected to take at least six months – the first could go back online within a year.

Pressure for a return to a limited form of nuclear power production is strongest among Japan's nine nuclear power plant operators, which suffered record losses last year amid soaring fuel costs. But ... given the practical and financial hurdles to filling the huge energy gap left by nuclear with more oil and gas imports or renewables, Japan has little choice other than to consider reactor restarts.

... PM Abe, has made no secret of his support for nuclear restarts, but insists that the days of collusion between pro-nuclear politicians and the industry, and of leaving safety precautions solely in the hands of operators, are

over. The new regulations require plants for the first time to fit reactors with special filters to minimize radiation leaks during Fukushima-type accidents, take measures to prevent terrorist attacks, and ensure that staff can oversee an effective post-disaster response even if the plant itself is inaccessible. In light of the Fukushima accident, coastal plants must have higher protective seawalls to protect plants against tsunami, along with sturdier structures that are better able to

withstand powerful earthquakes.

Winning approval for restarts from local politicians could be the biggest obstacle to the restarts, although the consent of nearby communities is not a legal requirement. Tepco, the utility that operates Fukushima Daiichi, faces a mounting bill for compensation and decommissioning Fukushima Daiichi, but was forced to ditch an application to restart two reactors in Niigata, central Japan, amid fierce opposition from the prefecture's governor, Hirohiko Izumida. He said the firm had failed to explain its plan to local people before submitting the application. ...PM Abe's LDP is alone among Japan's main parties in opposing a total nuclear phase out – a move supported by a majority of Japanese voters.

Public scepticism will not have been eased by reports of dramatic increases in radiation levels in groundwater at the Fukushima Daiichi nuclear disaster site. A well between the damaged reactor No. 2 and the sea showed levels of radioactive cesium-134 were 90 times higher on 8 July than they had been three days earlier, while readings for cesium-137 were 85 times higher. The discovery underlines plant workers' continuing struggle to cope with

At the first stage, the plant will be synchronised with the southern grid when power generation touches 400 MW. That is expected to happen in 30-45 days. After necessary regulatory clearances the power generation will be increased gradually to 50 percent, 75 percent, 90 percent and finally 100 percent. When that happens, the total installed nuclear power capacity in the country will go up to 5,780 MW.

the build-up of contaminated water after it has been pumped into three damaged reactors to keep them cool. Yet nuclear safety has not been a factor in determining how most people voted in recent national and local elections.

...Mr. Tanaka of the NRA conceded that complacency among Japan's nuclear plant operators had contributed to the Fukushima accident, but added, "It's important that we reflect on these deficiencies and then redress them." ... Goshi Hosono, secretary general of the opposition DPJ, which is committed to phasing out nuclear power by 2040, cast doubt on the new watchdog's independence. ...

Source: Excerpted from article by Justin McCurry. <http://www.csmonitor.com>, 10 July 2013.

Japan's Ohi-3 and -4 Get Go-aheads for Continued Operation

Two units at the Ohi nuclear power station in Japan will continue commercial operation until at least September 2013, based on new regulatory standards that were approved earlier this July by the NRA.... The new nuclear safety standards, drawn up in the wake of the March 2011 Fukushima-Daiichi accident, cover three main areas: design basis safety standards, severe accident measures and safety standards for earthquakes and tsunamis.

Operators of nuclear plants in Japan will be obliged to take concrete steps to mitigate against the possibility of serious accidents. Until now, such action was voluntary.

They will also be required to draw up emergency scenarios for bigger earthquakes and tsunamis. Ohi-3 and Ohi-4, both pressurised water reactors, are the only two nuclear power reactors currently in commercial operation in Japan. All reactor units were shut down for safety checks following the Fukushima-Daiichi accident. Ohi-3 resumed electricity generation on 5 July 2012 following an extended outage, ending a 60-day period without any of Japan's 50 reactors online. Ohi-4 was the second nuclear reactor in Japan to be re-started since the Fukushima-Daiichi accident.

Source: <http://www.nucnet.org>, 01 July 2013.

PAKISTAN

With Chinese Assistance: ECNEC Set to Approve Three Nuclear Power Plants

The highest project approval body is set to approve over Rs1.4tn worth

The new nuclear safety standards, drawn up in the wake of the March 2011 Fukushima-Daiichi accident, cover three main areas: design basis safety standards, severe accident measures and safety standards for earthquakes and tsunamis.

of projects, including three nuclear power plants of 2,400 MW capacity which will be built in Karachi with Chinese assistance. In total, six projects will be considered by the ECNEC for approval The body is headed by FM Ishaq Dar. All these projects have one thing in common

– Chinese assistance – and are being approved at a time when PM Sharif is in China to deepen economic relations with the world's second largest economy.

... ECNEC is expected to approve Karachi Coastal Power project, which is sponsored by the PAEC. The estimated cost of this 1,100 MW nuclear power plant is Rs 958.8 bn including Rs 692 bn foreign loan. This project will also be built with Chinese assistance. For the current year, the government has allocated Rs 6bn in the budget for land acquisition. Karachi Nuclear Power Plant-I (Kanupp-I) and Kanupp-II may also be considered for approval by ECNEC. To keep these projects secret, the government has not added them in the meeting's agenda.... Kanupp-II will have 1,000 MW power generation capacity....

ECNEC is also taking up for approval the 969 MW Neelum Jhelum Hydropower Project with revised cost estimates. Started with an estimated cost of Rs84 bn, the revised cost is now Rs274.9 bn, according to PC officials. ... China had stopped processing a \$448 mn loan for this project due to reservations about two other projects – Safe City Islamabad and a communications project. But with the change in government in Pakistan, chances of finalisation of the loan have brightened as premier Sharif is expected to take up this matter with the Chinese authorities during his ongoing trip ECNEC will also consider for approval the Nandipur Power Plant of 425MW, which is another case of mismanagement by the last government....

Source: <http://tribune.com.pk>, 04 July 2013.

SOUTH AFRICA

South Africa Reaches for Nuclear Power to Avoid Energy Shortages

SA is ready to implement a nuclear energy programme, according to the IAEA. Nuclear energy could provide a solution to SA's long-term struggle with energy shortages following years of underinvestment in energy, and a 20% growth in the country's electricity consumption in the last decade. In 2008 the energy was so

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short that "load shedding" was necessary.... As far back as June 2008 the SA government approved the Nuclear Energy Policy, which aims to diversify the country's main energy resources, and reduce its over-reliance on coal.

Many companies expressed interest in working with South Africa on nuclear energy during the IAEA forum in Russia.... In April, DoE director-general Nelisiwe Magubane told Parliament that SA's nuclear plans were non-negotiable and were backed by the NDP, which some commentators have disputed. ... Nuclear energy stations can be expensive to build and maintain as nuclear costs are rising due to advanced, safer technologies. Input costs sit at \$7,000/kW compared with \$5,000/kW in 2010. Implementation of nuclear energy often raises questions of safety. ...

Source: <http://www.thesouthafrican.com>, 04 July 2013.

UK

UK Nuclear Plan Advances With \$15 Billion Loan Backing

The UK government's decision to guarantee as much as \$15 bn in debt for the first nuclear power station in two decades helps ensure Electricite de France SA will support construction of the plant. ... The decisions fanned speculation that PM David Cameron's government is preparing to announce incentives strong enough to prompt EDF to build the plant. Nuclear along with offshore wind is at the heart of Cameron's program for replacing the fifth of the nation's power generation that's scheduled to retire from service within 10 years... .

Loan guarantees are crucial for EDF to reduce the risk of building and financing the proposed Hinkley Point C reactors. The guarantee, which acts as an insurance policy for providers of funding that they will get paid, will reduce the cost of debt needed to fund the project by allowing EDF to borrow at rates close to what the government pays....

Britain hasn't built nuclear power plants since 1995 and is seeking 110 bn pounds of investment in its aging power generation and electric grid network. The government and EDF remain locked in talks about the price the UK will pay for nuclear power, which EDF has said is the most important issue determining whether it will move ahead....The guarantee was announced as Britain unveiled it would pay offshore wind developers triple the market

price for electricity they generate to \$237 per MWh, from 2014. Onshore wind farms get 100 pounds a MWh for the next three year, and large solar plants 125 pounds next year and the year after.

EDF is seeking at least 95 pounds a MWh Discussions between the government and EDF are "intense and constructive".... The UK Treasury department said it agreed to pre-qualify Hinkley Point C plant for the 40 bn-pound guarantee program it first announced in July 2012. Drax Group Plc (DRX) in April won a guarantee on finance to fund conversion of its coal-fired power station to biomass. EDF will pay commercial rates for the guarantee, which isn't a subsidy since it's part of a program available to other energy projects... .

Nuclear power has been generating in the UK for the past five decades. All except one of the UK's nuclear plants is due to close by 2023. While there is no government target for nuclear, industry has plans to develop about 16GW of new atomic power. The UK has about 82GW of generation capacity, according to the Ofgem electricity regulator. ...

Source: <http://www.bloomberg.com>, 28 June 2013.

UK's Nuclear Sector to be Boosted by NuGen Stake Sale

Bids for a stake in NuGen, the nuclear joint venture between Spanish utility Iberdrola and France's GDF Suez, are expected to be tabled within weeks, after the co-owners started talks

with potential new investors to buy all or some of their shares in the UK project. A stake sale would pave the way for some of the leading global nuclear operators to invest in the consortium and would reinvigorate a UK nuclear programme that has been dogged by delays and concerns about rising costs, said people familiar with the matter. People close to the matter said that talks between officials from the Department of Energy & Climate Change, ministers, NuGen and potential bidders are expected to run into next week, with at least one potential bidder on the verge of making an offer.

The NuGen project has progressed more slowly than expected. It was created in 2009, won an option on land in Cumbria in northwest England later that year, and was supposed to submit a planning application for a new plant by the end of 2014. But it is widely thought unlikely to meet that deadline. If it fails to, experts said that the land optioned by NuGen would revert to the government and could be re-auctioned. NuGen is understood to be seeking

Britain hasn't built nuclear power plants since 1995 and is seeking 110 bn pounds of investment in its aging power generation and electric grid network. The government and EDF remain locked in talks about the price the UK will pay for nuclear power, which EDF has said is the most important issue determining whether it will move ahead.

a five-year extension on its option. But officials said that Iberdrola and GDF Suez must first convince the government that they have a project that can be delivered on time, has strong financial backing and, preferably, is based on a licensed reactor design.

Chinese group SNPTC, which has told the Financial Times that it was interested in buying Iberdrola's holding, is not the only Chinese company with an interest in Britain's nuclear renaissance. France's EDF has been in talks with China Guangdong Nuclear Power on teaming up to build a new nuclear plant at Hinkley Point in Somerset, southwest England. But talks between the government and French power group EDF on building at Hinkley have dragged on for months, with the companies still far apart on the guaranteed price EDF will be paid for power generated at the plant.

For Westinghouse Electric Co of Japan and SNPTC, coming into NuGen would erase an earlier disappointment. They had bid for Horizon, a nuclear joint venture that was put up for sale by its German owners Eon and RWE last year. They lost out to a rival offer from Japan's Hitachi and SNC-Lavalin, the Canadian engineering group. Westinghouse's parent, the Japanese technology group Toshiba, is keen to expand into foreign markets in the wake of the 2011 Fukushima disaster. ...

Source: Excerpted from article by Anousha Sakoui, Guy Chazan, Jim Pickard. <http://www.ft.com>, 12 July 2013.

USA

Why There is Still Hope for Nuclear Energy

Five years ago nuclear energy was projected to be the best alternative energy source to coal. But, since the shale gas boom in 2009, prospects for nuclear power faded. For example, industry leader, Exelon (EXC), saw its stock price drop from \$90 in 2008 to about \$31 today. Further, accidents like Fukushima do not help the case for nuclear energy.

But according to a poll conducted by the Nuclear Energy Institute, public support is finally returning to pre-Fukushima levels. The NEI poll showed 81% of Americans believe nuclear energy is important for the nation's future energy needs, and 82% said nuclear plants should continue to develop nuclear energy to meet growing energy demands. Further, as discussed below, government regulations are becoming less strict in the industry. So, with dissidence declining now is a great time to invest in companies planning on expanding their nuclear operations.

New Support for New Designs: Only 5 commissioned nuclear plants broke ground in the past 30 years. And, only 4 more are projected to be installed in the next few years. The other 100 reactors in the US are over 30 years old. They are outdated in terms of design and are unable to meet recertification regulation requirements.

This makes investing now an even greater opportunity while the infrastructure is still being built up. When reactors are retired, the amount of energy generated from the nuclear industry decreases. So, if nuclear power is to be a component of the US energy output, new plants must be built. The biggest hindrance to building new reactors is the NRC's requirements for new plants. Hussein Khalil, director of Argonne's Nuclear Energy Division, said that safer reactor designs are not invested in heavily because of industry reluctance. After all, why would firms invest in the development of a design if there is no guarantee it will be approved by the NRS?

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A solution is found through a 2006 NRC licensing procedure, which allows utility companies to choose from pre-approved designs. Now, utility companies can simply choose where to build plants knowing that the designs are already approved. With four new plants approved for

licensing right now, utility companies are already showing confidence in investing in nuclear power.

Who are the Big Contenders for Nuclear Power?:

Exelon Nuclear dominates the industry with an overall capacity factor of 92.7%, revealing that Exelon nearly maximizes its operating potential. Despite economic headwinds, 2012 growth investments in plant upgrades paid off-Exelon's output increased 500 Mega Watts. One MW provides enough electricity to power about 600 homes. So, with no new construction, technology investments increased output to 300,000 homes.

Exelon's balance sheet and stock price do not reflect the company's strength. Last March, the \$7.9 billion acquisition of Constellation Energy and its regulated utility, Baltimore Gas and Electric, caused a re-evaluation of company assets at lower values. One potential reason for the lower valuation is to account for the weakened financial position having doubled its debt while growth projections fell 11% after the acquisition.

Source: <http://seekingalpha.com>, 12 July 2013.

NUCLEAR COOPERATION

BELARUS–BANGLADESH

Belarus, Bangladesh to Cooperate in Peaceful Uses of Nuclear Energy

Belarus and Bangladesh intend to cooperate in peaceful uses of nuclear energy. Representatives of the Belarusian Energy Ministry told BelTA that with the memorandum,

which was signed in Minsk during the visit of the Bangladesh delegation, the sides expressed their interest in establishing cooperation in such areas as the implementation of a nuclear energy program, the development of nuclear power engineering infrastructure, the construction and operation of power-generating units of nuclear stations, electricity generation, nuclear security and radiation protection, and cooperation in training and career enhancement of Bangladeshi specialists in Belarus.

Plans have been made for experts of Belarus and Bangladesh to work out a draft intergovernmental agreement on cooperation in peaceful uses of nuclear energy. A Bangladesh government delegation led by the country's PM visited Belarus on 8-9 July. Negotiations in Minsk resulted in the signing of nine international documents on cooperation in various spheres, including finance and joint programs in education and culture.

... Like Belarus Bangladesh is intent on developing a nuclear power engineering industry of its own. In November 2011 Russia and Bangladesh signed an agreement on building two-power generating units of a Russian design with the installed capacity of 1,000MW each at the Ruppur site 200km away from the country's capital, Dhaka. On 27 June 2013 the Russian company OAO NIAEP and the Bangladesh commission for nuclear energy signed a contract for the development of the feasibility study for the construction project, the environmental impact assessment study for the Ruppur site, the fulfillment of engineering surveys and ecological surveys for the project to build the first nuclear power plant in Bangladesh. Bangladesh drastically needs electricity since the majority of the population has no adequate access to electricity. According to statements made by Bangladesh government officials, the construction of the nuclear power plant is very important for the country.

Source: <http://news.belta.by/en>, 10 July 2013.

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A three-year-old Indian law limits nuclear reactor operator liability following an accident to roughly \$320 mn and allows lawsuits against suppliers of nuclear materials, services and technology – a measure that conflicts with international norms.

INDIA–AUSTRALIA

India, Australia to Hold 2nd Round of Talks on Nuclear Deal

India and Australia will hold their second round of discussions on uranium sale in July-end, three months after they launched negotiations for a civil nuclear cooperation agreement. Noting that ultimately it was up to the

companies to finalise the commercial details of sale of uranium, Australian high commissioner to India Patrick Suckling said the effort during the negotiations was to put in place an effective safeguard mechanism to ensure that the Australian uranium was used for peaceful purposes.... Asked when can India expect the first consignment of the yellow cake, he said, "That is up to the companies to make the decision but what we are trying to do is to put in place a framework to enable the (Australian) companies to be able to make that decision (to sell uranium to Indian companies). ...

Source: <http://timesofindia.indiatimes.com>, 12 July 2013.

INDIA–RUSSIA

Indian-Russian Atomic Trade Dispute Persists

Plans for Russia to build two nuclear power reactors in India remain on hold following an unsuccessful attempt to eliminate differences over who should pay for the consequences of any accident involving the prospective systems.... A three-year-old Indian law limits nuclear reactor operator liability following an accident to roughly \$320 mn and allows lawsuits against suppliers of nuclear materials, services and technology – a measure that conflicts with international norms.... The sides are no closer to breaking the stalemate preventing construction of the new reactors at Kudankulam Nuclear Power Plant in southern India.... A multilateral nuclear export group in 2008 lifted decades-old restrictions on civilian nuclear trade imposed on India because the South Asian nation is

not a NPT member and did not permit international audits of its complete atomic complex. As part of a nuclear trade deal with the US, nuclear-armed India agreed to allow UN monitoring of non-military nuclear sites.

Source: <http://www.nti.org/gsn>, 03 July 2013.

INDIA-USA

Indo-US Nuclear Deal: Speakers Highlight Reservations, Double Standards

Pakistan has serious reservations over the Indo-US nuclear deal and related efforts promoting India in the international nuclear order and is closely monitoring regional and global developments in this regard. This was stated by leader of the house in the Senate, Raja Zafarul Haq while chairing a seminar at IPS on 'Indo-US Nuclear Deal and Pakistan: The Years Ahead' on 27 June

... Haq said Pakistan would build upon its own strengths to improve its nuclear capabilities for civil use and maintain a formidable defence and would also explore other avenues for the purpose. He said Pakistan had been able to ride the tide and counter challenges posed to it since its inception. The newly elected government had the formidable task of reviving the dignity of the country and rise as a respectable nation, he added.

Tariq Osman Hyder, an expert on the subject, asked the US and other members of the NSG to adopt a "non-discriminatory, criteria-based approach" in extending nuclear cooperation to other countries. Underlining the anomalies, contradictions and double-standards in Indo-US nuclear deal, he said that eight Indian power reactors had been permitted to remain outside IAEA's safeguards without any justification and were capable of producing weapons grade plutonium.... The speaker was of the view that US was investing in India as part of a "grand strategy" in which India is part of an "anti-China coalition". He stressed the need to better project the efforts of Pakistan in the field of nuclear security and non-proliferation.

Highlighting Pakistan's persistent efforts to instill a culture of security in all facets of its nuclear program, he said that security consciousness had been an integral part of Pakistan's nuclear development and the country had an "active and ongoing collaboration" with the IAEA on civil nuclear security issues. "While Pakistan will continue to act with responsibility in maintaining minimum credible deterrence and to avoid an arms race, it will neither be oblivious to its security requirements nor to the needs of its economic development which demand growth in the energy sector including civilian nuclear power generation," he emphasised.

Source: <http://tribune.com.pk>, 28 June 2013.

Pakistan has serious reservations over the Indo-US nuclear deal and related efforts promoting India in the international nuclear order and is closely monitoring regional and global developments in this regard.

IRAN-RUSSIA

Iran-Russia Cooperation Benefits Energy Market, Ahmadinejad Tells Putin

Cooperation and coordination between Iran and Russia positively affects their relations and the global energy market, President Ahmadinejad said in a meeting with Russian President Vladimir Putin in Moscow. ... Ahmadinejad also said that the Russian-made Bushehr nuclear power plant was the symbol of constructive cooperation between Iran and Russia, adding that the project could serve as a model for building new power plants. The Russian president also said that the two countries had common interests in the Caspian Sea and the energy sector, adding that Tehran and Moscow should hold further talks to help enhance bilateral relations.... In a meeting with a number of Russian intellectuals ...

Ahmadinejad said that Iranian and Russian officials were holding negotiations to settle the issue of Russia's failure to fulfill a contract for delivery of the S-300 missile system to Iran....

Source: <http://tehrantimes.com>, 02 July 2013.

USA-SOUTH KOREA

US Proposes Bill to Extend S. Korea-US Civilian Nuclear Cooperation Pact

With negotiations still ongoing the US House of Representatives has proposed a bill to extend the South Korea-US civilian nuclear cooperation agreement by two more years.

Chairman of the House Foreign Affairs Committee Ed Royce introduced the legislation on 27 June to extend the current accord which is set to expire in March 2014 until March 2016. This will give negotiators more time to reach a compromise. In April, Seoul and Washington tentatively agreed to postpone the expiration after coming short of agreeing on Korea's reprocessing of spent fuel and civilian uranium enrichment. The US is reluctant to oblige due to its proliferation concerns.

Source: <http://www.arirang.co.kr>, 28 June 2013.

NUCLEAR PROLIFERATION

IRAN

Exiled Dissidents Claim Iran Building New Nuclear Site

An exiled opposition group said it had obtained information about a secret underground nuclear site under construction

in Iran, without specifying what kind of atomic activity it believed would be carried out there. The dissident NCRI exposed Iran's uranium enrichment facility at Natanz and a heavy water facility at Arak in 2002. But analysts say it has a mixed track record and a clear political agenda. Its new allegation drew a cautious international response: the UN nuclear watchdog and France ... merely said they would look into the matter.

... In 2010, when the group said it had evidence of another new nuclear facility, west of the capital Tehran, US officials said they had known about the site for years and had no reason to believe it was nuclear. The latest allegation comes less than a month after the election of a relative moderate, Hassan Rouhani, as Iran's new president raised hopes for a resolution of the nuclear dispute with the West, and might be timed to discredit such optimism. ... The NCRI said members of its affiliated PMOI inside the country had "obtained reliable information on a new and completely secret site designated for (Iran's) nuclear project". ...

The NCRI said the site was inside a complex of tunnels beneath mountains 10 km (6 miles) east of the town of Damavand, itself about 50 km northeast of Tehran. Construction of the first phase began in 2006 and was recently completed, it said. The group released satellite photographs of what it said was the site. But the images did not appear to constitute hard evidence to support the assertion that it was a planned nuclear facility.... "The site consists of four tunnels and has been constructed by a group of engineering and construction companies associated with the engineering arms of the MoD and the IRGC," the NCRI said. "Two of the tunnels are about 550 metres (600 yards) in length, and they have a total of six giant halls."

Source: <http://uk.reuters.com>, 11 July 2013.

NORTH KOREA

North Korea Calls for Nuclear Talks "Without Preconditions"

North Korea dismissed US calls for evidence of nuclear disarmament as a condition for talks on Pyongyang's weapons programme.... Foreign Minister Pak Ui-chun made the

Site was inside a complex of tunnels beneath mountains 10 km (6 miles) east of the town of Damavand, itself about 50 km northeast of Tehran. Construction of the first phase began in 2006 and was recently completed. The site consists of four tunnels and has been constructed by a group of engineering and construction companies associated with the engineering arms of the MoD and the IRGC. Two of the tunnels are about 550 metres (600 yards) in length, and they have a total of six giant halls.

statement during an annual regional security forum in Brunei hosted by the ASEAN, which was also attended by US State Secretary John Kerry. ... "We won't give up our nuclear weapons unless the US withdraws its hostile policy against our country," Chun told reporters.... Kerry said Washington and its key Asian allies South Korea, Japan and China were united in calling for the denuclearization of North Korea. "We stress the need for North Korea to fully comply with the UNSC resolutions," Kerry said. "We agree to strengthen our cooperation in the community in order to ensure full and

transparent implementations of those resolutions." The ARF comprises the 10 members of the South-East Asian bloc and 17 others, including the EU, US and Russia.

Source: <http://www.thehindubusinessline.com>, 02 July 2013.

NUCLEAR DISARMAMENT

RUSSIA-USA

Next US-Russia Arms Talks Could Involve Short-Range Nuclear Weapons

President Obama has made reducing NWs worldwide a priority of his administration. The New START Treaty limits to 1,550 deployed long-range nuclear warheads on 700 deployed strategic nuclear delivery systems such as long-range rockets and heavy bombers. But the new agreement does not address the issue of short-range, TNW.... Analysts say Russia has about 2,000 TNW, not all operational. Many are awaiting dismantlement and others are in deep storage bunkers ... the US has a much smaller stockpile.

"In Europe, we still have an estimated 180 nuclear gravity bombs - the B-61 bomb that can be carried by fighter bombers like the F-16. They are located in five NATO countries: Belgium, The Netherlands, Turkey, Germany and Italy"....

NATO Discusses Future of Nuclear Arms: Analysts say there is a debate within the NATO on what to do with those weapons ... several countries, including Belgium, The Netherlands and Germany, say these

The New START Treaty limits to 1,550 deployed long-range nuclear warheads on 700 deployed strategic nuclear delivery systems such as long-range rockets and heavy bombers. But the new agreement does not address the issue of short-range, TNW.

TNWs serve no military purpose for the defense of NATO today and should be scrapped. "These weapons are stored in bunkers. They would take days to prepare for delivery by fighter bombers. Their use will have to be authorized by all of NATO's [28] members which is a difficult accomplishment on virtually any issue, let alone using NWs for the first time since Hiroshima and Nagasaki." But David Holloway, a NWs expert at Stanford University, said other NATO members have differing views.

"Other countries, especially the newer members in eastern/central Europe, want to keep the tactical nuclear weapons in Europe as an element of the commitment, as it were, or a sign, symbol of the commitment of the US to the defense of the NATO countries, because they are more concerned about a potential threat from Russia, than the countries of western and southern Europe are," he said.

Obama Calls for Reducing Nuclear Weapons: During a recent speech in Berlin, President Barack Obama said the US and NATO will "seek bold reductions in US and Russian TNWs in Europe." Holloway said that could be an arduous task. "The issue of getting reductions in TNWs has traditionally been extremely difficult because Russia says, 'We need TNWs because our conventional forces are very weak compared with either those of NATO, or with those of China. And therefore we need TNWs for our defense.'

Russia Worries about China: Holloway said for Russian military officials, it is essential to have adequate defenses against China. ... Experts say reducing American and Russian short range NWs is a much more complicated issue than lowering the number of long-range missiles by one-third - a proposal also made by President Obama in his Berlin speech.

Source: <http://www.voanews.com>, 02 July 2013.

USA

House Members Step Up to Prevent US Unilateral Nuclear Reductions

Representatives Mike Turner (R-OH), Mike Rogers (R-AL), Trent Franks (R-AZ), and Jim Bridenstine (R-OK) offered an amendment to the House fiscal year 2014 energy and water development bill that would prohibit the government from reducing US nuclear forces in contravention of the US Code. This is a step in the right direction.

In June, President Obama announced he would seek negotiated cuts of US and Russian NWs arsenals. However, section 2573 (b) of Title 22 of the US Code, which is related to matters of arms control and disarmament, prohibits the President from reducing or limiting "the Armed Forces or armaments of the US in a militarily significant manner, except pursuant to the treaty-making power of the President" or "unless authorized by the enactment of further affirmative legislation by the Congress of the US." This means the Administration's seeking additional nuclear arms reductions by means that circumvent the Senate's role in the arms control process is illegal. The Senate reaffirmed its commitment to this long-standing bipartisan principle in the New START Resolution of Ratification. A group of Republican Senators recently sent a letter to remind Secretary of State John Kerry of this principle. ...

Source: <http://blog.heritage.org>, 09 July 2013.

NUCLEAR SAFETY

CHINA

Scientists Allay Fears over Nuclear Power

Nuclear energy experts support the expansion of China's nuclear power project, trying to convince the public that nuclear energy is safe and clean. The nuclear scientists made such remarks during China's first weeklong campaign to boost the nation's recognition of nuclear energy, and prepare the country for a nuclear emergency.

Nuclear energy experts support the expansion of China's nuclear power project, trying to convince the public that nuclear energy is safe and clean. The nuclear scientists made such remarks during China's first weeklong campaign to boost the nation's recognition of nuclear energy, and prepare the country for a nuclear emergency. Earlier, China's central authorities revised the National Nuclear Emergency

Response Plan, which has been in effect since 2005. The new version outlines a four-grade response mechanism on par with the gravity of a given situation. It also standardizes the response mechanism, should a nuclear emergency happen in Taiwan, or if a spacecraft, containing nuclear material, falls.

... China, reportedly, ponders resuming several inland nuclear power projects, which have been halted due to excessive public concern, in the wake of Japan's Fukushima Daiichi nuclear accident in 2011....The fear of nuclear energy is a universal phenomenon because nuclear pollution - colorless and tasteless - can cause severe damages to the human body, such as thyroid problems, due to radioactive iodine.

... The IAEA's initial reports on Fukushima Daiichi's nuclear accident said that the data showed little significance

compared with that of Chernobyl and that there has been no report on deaths linked to radiation leakages.... However, there were deaths caused by mental stress. Scientists agreed that properly organized and calm evacuations remain the best ways in case of nuclear accidents. They all warn of irrational behaviors, including hoarding iodine salt as seen in most Chinese cities, shortly after the Fukushima Daiichi accident.

But the fact is that a leakage of I-131 (radioactive iodine) only occurs when the nuclear reactor is affected. In such a situation, people should take iodine tablets to fill up their thyroids with iodine, in order to prevent I-131 from entering their bodies. "While in other cases, taking excessive iodine pills will result in iodine poisoning" ... iodized salt only contains a minimal amount of iodine, meaning that to reach the dose of one iodine tablet, a person has to take several kilograms of salt.

Source: <http://www.china.org.cn>, 03 July 2013.

CUBA

Cuba for Free Exchange in Nuclear Security Conference

Cuba advocates for the free technological exchange, without impediments, to strengthen nuclear security at international level.... Cuba suffers improper restrictions to the export of materials, equipments and technology with peaceful objectives to some developing countries. ...The Cuban representative denounced Cuba "has been and is still being a victim of prohibitions, as part of the illegal US economic, commercial and financial blockade policy applied against Cuba for more than 50 years." ... Despite such affectations, Cuba will keep on expending important financial resources to guarantee the security of nuclear materials... .

Another topic, of which the Cuban delegate spoke, was the nuclear arsenal, which is now up to more than 17,000 weapons. "It is responsibility of the countries possessing these weapons, to guarantee their complete physical security. The only absolute guarantee against the use of the threaten of these weapons, is their prohibition or elimination. Nuclear disarmament cannot be a postponed and relegated purpose forever," added the Cuban delegate. ...Cuba will continue to promote the immediate start of negotiations and the adoption of an International Convention on Nuclear Disarmament, since the present and future generations have all the right to live in a safe and sustainable world.

Source: <http://www.plenglish.com>, 03 July 2013.

JAPAN

Japan Says Building Nuclear Safety Culture will Take a Long Time

Japan's nuclear regulator said that elevating safety culture to international standards will "take a long time", days before new rules come into effect to avoid a repeat of the Fukushima nuclear disaster in March 2011. The NRA admitted that the awareness of the dangers related to working with nuclear technology had been weak prior to the disaster and that it hoped new standards would force the companies to change their approach.

...Tokyo Electric Power Co, operator of the Fukushima plant that had three meltdowns, Kansai Electric Power Co and three other listed nuclear operators have said they will apply for restarts after the rules go into effect. ... Only two of Japan's 50 reactors are running and the decision by the previous government to start them up by 2012 was met with the biggest protests in decades and contributed to its defeat in polls in December.... 59 percent of respondents were opposed to the new government's plans to use nuclear power to help turn the economy around. Without reactors running, the utilities have been forced to turn to fossil fuels instead, especially costly LNG. The fall in the value of the yen means they face a fuel import bill of 3.8 trillion yen this business year, double the year before the Fukushima disaster... . Upgrades the NRA requires in its quest to impose the world's toughest earthquake and tsunami standards will cost the industry an estimated \$12 bn....

Source: <http://uk.reuters.com>, 04 July 2013.

NUCLEAR WASTE MANAGEMENT

GERMANY

What to Do With Nuclear Waste?

Fifty years after Germany began using nuclear power, the country is once again looking for a suitable nuclear waste storage facility. Search priorities include transparency, safety and scientific criteria. The German government, together with the opposition, hopes to approve a so-called depository site law for nuclear waste ahead of federal elections in September. The Bundestag, on June 28 will vote on the planned legislation. After a nearly 35-year controversy over the suitability of a salt mine in Gorleben in northern Germany as a potential site for storing high-level nuclear waste, the search for a storage site will begin again. The bipartisan compromise is considered historic. A 33-member commission will have until 2016 to establish the scientific criteria for the search for a long-term storage site in Germany. Politicians will make up

half of the commission with the rest of the seats being filled by scientists, anti-nuclear activists and other representatives of society. A storage site could be found by 2031, but it is not likely to start operation before 2040....

Finding a suitable location for the storage of nuclear waste poses a huge challenge, since it must be able to contain radiation for a million years. Experts believe deep underground locations in rock salt, clay or granite would be possible. Salt is well suited for dissipating the heat of radioactive waste and enclosing it. But there is a risk of water seepage. While clay is not soluble in water, it has the disadvantage of lower thermal conductivity and stability. Granite, on the other hand, offers stability, but the waste containers would still also have to shield the radiation. The aim of the proposed search method is to find particularly suitable storage sites in Germany and predict their shielding quality for more than a million years, based on the latest geological knowledge....

Improper disposal of nuclear waste poses, above all, a long-term risk to people and the environment – and generates high costs. The Asse nuclear waste site in Germany is an example. Nearly 126,000 barrels of nuclear waste were stored there between 1967 and 1978; some 14,000 barrels, however, lack accurate documentation about their contents. On top of that is the choice of the salt mine, which is now widely viewed as a wrong decision. The penetration of about 12,000 liters of water daily threatens to contaminate the groundwater. The planned rescue of the barrels from the tunnels, which are in danger of collapsing, is risky, time-consuming and may even be no longer possible... .

The worldwide practice of disposing radioactive waste in the sea is considered dangerous and was partially prohibited by an international agreement only in 1993. What has been dumped in the sea so far, according to the IAEA, is not highly radioactive nuclear waste. Greenpeace estimates that about 100,000 tons of such waste is at the bottom of seas around Europe alone. The long-term effects are still largely unknown.

Nuclear waste is being dumped at sea. There is still no storage site for radioactive waste in the world. "The search for a storage site has also started up all over again in the US" The country that is furthest along in its search is

Finland, which has already approved construction of a depository, as well as Sweden, France and Switzerland, where the search for suitable sites is governed by law and is making progress. Switzerland has also completed a detailed study on the future of nuclear waste disposal costs, which could conceivably arise from its five nuclear power plants. The study was conducted by the Swissnuclear, and commissioned by the SFOE. According to the study, future storage costs could amount to about 12 bn Swiss francs or about 10 bn euros.

The forum Ecological-Social Market Economy has evaluated the Swiss study and, based on its findings, estimated the future costs for storing nuclear waste from Germany's eight deactivated and nine active nuclear power plants. According to conservative calculations by

the researchers, Germany can reckon with storage costs of about 18 bn euros in the future. The German Atom Forum, comprised of all German nuclear power plant operators, intends to pay as little as possible for storage and rejected shouldering costs for the new site search....

Source: <http://www.dw.de>, 28 June 2013.

USA

Yes We Can - Dispose off Nuclear Waste

... Congress took the first step in adopting a rational and achievable nuclear waste disposal plan that would reverse the catatonic state of our existing nuclear program. Senators Feinstein (D-CA) and Alexander (R-TN), the leaders of the Appropriations Subcommittee on Energy and Water, and Senators Wyden (D-OR) and Murkowski (R-AK) Chairman and Ranking Member of Energy and Natural Resources, just introduced the NWAA of 2013 (S. 1240).

The NWAA creates a new and independent Nuclear Waste Administration to manage nuclear waste, construct an interim storage facility(s) and site a permanent waste repository through a consent-based process. All of this will be funded by on-going fees collected from nuclear power ratepayers (the Nuclear Waste Fund). These three tasks were the backbone of recommendations made in 2012 by the President's BRC, an entity formed to develop a path forward after Yucca Mountain was halted.

Nearly 126,000 barrels of nuclear waste were stored there between 1967 and 1978; some 14,000 barrels, however, lack accurate documentation about their contents. On top of that is the choice of the salt mine, which is now widely viewed as a wrong decision. The penetration of about 12,000 liters of water daily threatens to contaminate the groundwater. The planned rescue of the barrels from the tunnels, which are in danger of collapsing, is risky, time-consuming and may even be no longer possible.

In this bill, the NWA Administrator is given tremendous flexibility in negotiating compacts with state, local, and tribal governments. Governors become the primary state officials responsible for entering into agreements with the NWA. Only after most issues are settled does ratification by Congress occur. Presumably at that point it will be a no-brainer. ... This bill is much more important than just addressing our nuclear waste issues. It is a pioneering way for Congress to craft policy and law with public input in just the consensus manner we need to fix our broken government.... In a reasonable world, such open publically-discussed legislation should allow the bill to sail through both Houses since there should be no surprises, and most issues would be dealt with during the process.... The stakes could not be higher. If this bill does pass, then legislative *discussion drafts* could become the normal approach in reaching public policy decisions on important and controversial topics using the consensus that the BRC strove so hard to outline.

On the other hand, if this NWAA cannot pass the Senate and then the House, it will demonstrate how useless it is

But we will never use Yucca Mountain because its choice was the antithesis to a consensus approach, forced on the State of Nevada in a manner that screamed coercion. The intention of this new bill is to reverse that top-down mindset and open it up to true and unrestricted negotiation from the bottom up. And that solves the issues as it goes.

to issue a *discussion draft* of important legislation for public comment, and we will remain stuck in the Sisyphean trap that our legislative process has become. ... While technically true, these miss the point that in a consensus approach, nothing is ever dead, just off the table, like Yucca Mountain. But Yucca Mountain is still important to this process. We need

Yucca Mountain, if only on paper, to satisfy the *retrievability window* issue posed in the 1982 NWPA that began this lemmings march we've been on for over 30 years. We need Yucca Mountain on paper as a theoretical option so we don't have to completely rewrite the NWPA.

But we will never use Yucca Mountain because its choice was the antithesis to a consensus approach, forced on the State of Nevada in a manner that screamed coercion. The intention of this new bill is to reverse that top-down mindset and open it up to true and unrestricted negotiation from the bottom up. And that solves the issues as it goes. The NWA would have the authority and the funding to do just that. ...

Source: <http://www.forbes.com>, 30 June 2013.



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 Cmde Jasjit Singh, AVSM, VrC, VM (Retd).

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